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THEORIES OF KNOWLEDGE

HISTORICALLY CONSIDERED

WITH SPECIAL REFERENCE TO SCEPTICISM AND BELIEF

BY

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OF METAPHYSICS, ETC.,
ETC., ETC., ETC.

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TO

MY FORMER PUPILS

IN HOBART COLLEGE FROM 1850 TO 1868

AND

IN CORNELL UNIVERSITY FROM 1868 TO 1886

THESE LECTURES,

THE RESULT OF MUCH STUDY AND THOUGHT

FOR THEIR SAKES

ARE AFFECTIONATELY DEDICATED

BY

THE AUTHOR.

PREFACE.

I have felt for some time that there ought to be some plainer statement with more familiar illustrations of the various theories of knowledge that have been proposed than has yet been offered to the public. I have felt, too, as though I had some special opportunities for preparing such a work, having been engaged in a course of instruction for nearly forty years which required me to go over the subject once at least each year.

My belief is, that there is no one of these theories that cannot be stated in the common language of mankind and illustrated by examples so familiar as to bring it within the comprehension of all ordinary minds. But whether I have had too much conceit in my own ability in this direction, or whether I have not fully comprehended the systems themselves, are points on which the reader will judge for himself.

When Agassiz came to this country and began to teach Natural History at Harvard, he is said to have made the remark that when the students of Nature go out from their books and their libraries to study nature itself, they never find it. His complaint was, that the students had been studying books, and could repeat all that had been said about things, and discuss very learnedly all the different views of the various authors that had written on the subjects, but when they came face to face with the facts and objects themselves, they knew but very little about them, and in many cases they could not even recognize them when they had found them. His view commends itself to all men in our day.

These men had studied books and words, rather than things. And it has often appeared to me that many of our students, and teachers, too, of metaphysics have made the same mistake.

Words are but arbitrary signs of the things which we propose to signify by them. And it is quite true that in metaphysics we cannot turn from the words of the author to any *external* facts, objects or processes, which they may be supposed to represent or describe. But if they are true at all they must represent and describe some facts or processes of an internal character that occur in the minds of men.

And if they have occurred in the mind of any one man and are of a general character, so as to constitute the proper basis or material for a philosophy, they must have occurred in the minds of most men, and presumably, therefore, in the mind of any student or reader of metaphysics. Hence, he has but to look within himself to the facts of his own consciousness and experience for his illustrations.

But in all cases words must be interpreted by facts, if we are to have any scientific knowledge of anything.

The difference I have in mind admits of an easy and familiar illustration. Suppose we ask the same question to a class of students. Let it be, "how is the State of Tennessee bounded?" One student will recall and repeat the words which he has learned from some text book; the answer, we will suppose, is perfectly correct. The other student immediately recalls in imagination a map and sees the States that are around Tennessee, and gives their names. And he, too, is perfectly correct. But he describes the thing and uses his own words for that purpose, while the former student repeats the words he has learned, and this, as we often see, may be done without the slightest idea of their meaning.

Most of the theories of knowledge that have been given to the world have been written in languages that are foreign to us and some of them in ages that have long since gone by. Hence the words which these authors used are often such as admit of no full and adequate translation by words that are familar in our language. Nor can they be paraphrased so as to make their meaning obvious to the inexperienced reader. What we want is not "the very words" of the author, but some explanation of what he meant by the words he used.

Of course, a knowledge of the words, as given in this Grammar, and the meaning of their terms, as given in the Dictionaries of these languages, is indispensable. But, more than that, and more, too, than a knowledge of the facts of which the author is speaking, is necessary to a right apprehension of what he really meant to say. There must be some familiarity with the habits of thought and the modes of expressing them that were in current use at the time when the author wrote.

I write chiefly for those who read only the English language and that, too, the English that is in common use in denoting common things, and in expressing the thoughts that are common to most men of intelligence. Hence, it has been my constant care and aim, while giving the technical terms that are used for the sake of scholars, to give also a common sense statement of the doctrine that is conveyed or rather, perhaps, often concealed by them, with free and very familiar illustrations for the use of those who have no taste for those things.

But, after all, I fear, it must be confessed that there are certain minds to which many of the truths of metaphysics cannot be made so plain as to come within a range of their entire comprehension.

Recent discoveries and discussions have made us familiar with the phenomena of color-blindness. Many persons who are not at all deficient in the sense of hearing are what we may, perhaps, call music-deaf. Most animals hear the words we speak as well as we can, and yet they are sense-blind. That is, they can attach to most of the words they hear none of that sense which makes them so influential with us.

One of the best mathematicians I ever knew could not learn any foreign language; and one of the best linguists I have ever seen could not understand anything of mathematics beyond its very first principles. He could repeat wordf or word the demonstrations in his Geometry and even, to some extent, in the higher mathematics, but he could neither understand them nor see their force as proof of the proposition they were intended to demonstrate.

In view of these facts, we ought not to be surprised if there are some minds which are very highly gifted for other departments of knowledge, that have no taste for metaphysics and find it difficult, if not quite impossible, to understand their more abstruse principles.

And these considerations must be accepted as my reason (and apology, if apology be deemed necessary) for the frequent recurrence and repetition of some of the more fundamental facts and doctrines, in different relations, and with a greater variety of illustrations than I should otherwise have thought desirable.

With these remarks I commend the book to the consideration of the reader, trusting that when he shall have carefully considered its contents he will have a clearer and better idea of the scope and extent of what may be regarded as knowledge, whether attained or attainable, as well as a more adequate idea of what we may properly believe and reasonably hope for, whether as a matter of science and knowledge in this world, or of faith and hope in the world to come.

W. D. WILSON.

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THEORIES OF KNOWLEDGE.

LECTURE I.

PLATO AND THE THEORY OF IDEAS.

§ 1. THEORIES of knowledge lie at the foundation of all other theories. No theory can be formed, and scarcely a statement can be made, on any subject of human thought, that does not imply and presuppose some theory of knowledge — a theory of its origin, our means of knowing, and both the foundations and the extent of that which we can claim to know.

In the ages past several theories have been proposed, and gained a more or less wide reception among mankind. And each one of them, during the period of its prevalence, and throughout the extent to which it prevailed, exerted a very marked and powerful influence on many of the practical opinions of the age—both theological and moral—which were of the greatest importance to mankind.

It has been said by as good an authority as Sir William Hamilton, "that no theological dogma has ever been set forth by the Church or by any branch of it, whose phraseology had not been derived from some one or another of the systems of philosophy that have prevailed, to such an extent that it means one thing or another, according as its terms are interpreted by one or another of these systems; and that the various meanings thus given, or rather attached to, it are often quite the reverse and contradictory of each other."

For this reason, if for no other, it would seem that some knowledge of metaphysics, or theories of knowledge, is indispensable to all educated men. There are, in fact, practical principles of great importance, which they can understand and apply in all the ordinary affairs of life, without much comprehension of the more abstruse points that occupy so large a space in any of our professed treatises on the subject. Metaphysics is, in this respect, like most other sciences; men often apply their principles without knowing the reasons for them.

It is my purpose in these Lectures to give a plain, common sense statement of these theories, with familiar illustrations; and to point out the influences which they have exerted, and some, at least, of the diversities in the religious belief and moral practices of mankind, to which the different theories of knowledge have led.

It is a very common impression that there is no philosophy that explains the facts and phenomena of human nature and human belief; but only this man's opinion and that man's system—no science or philosophy in the case in fact, which rests upon undisputed facts, and is built up by the methods that give intelligibility and certainty to the results that are attained, or attainable, in other departments of thought and inquiry.

I fear that this is true to a very large extent; much farther than it ought to be. What we call metaphysics *is* unintelligible to most persons. And scarcely can we cite an opinion that is not disputed and controverted; so that the number of doctrines or principles *in which all are agreed* is exceedingly small. I can hardly recall one.

§ 2. Philosophy began in Greece with Thales, born about 640 B. C., and Pythagoras about 580 B. C.—and in part at least—as a protest and reaction against the prevailing polytheism and mythology. These earlier philosophers, however, were neither materialists nor atheists. The contemplation of nature and of the human mind, and the direct study of their phenomena, led them to a belief in one Supreme Mind. But among the philosophers, diversity of views and different systems arose, until the necessity for some criterion—some *theory* of knowledge—its foundation and limits, and our means of acquiring it, became not only a manifest, but a controlling necessity.

Plato stands first in the order of time, in furnishing a theory of knowledge, and is certainly equal to any of them in the grandeur of his genius, the beauty of his diction, and the poetry of his illustrations. Socrates had preceded him. But Socrates left nothing in writing behind him. He was a man of most marvelous insight. But so far as our subject is concerned, he seems to have contented himself with assuming and asserting the fact that, some how or other, man has such an insight into the nature of things, and especially of human actions, that he does know, or can discern, the difference between right and wrong, if he will only take the pains to look into such matters.

§ 3. But Plato saw the necessity of looking—if not deeper (and that is hardly possible)—yet more comprehensively into the subject. In his view popular opinion, *δόξα*, the mere sense-impressions and opinions, such as prevails among the unreflecting masses —and all mere masses of men are unreflecting—is often faulty and wrong, and is never scientific knowledge; whereas scientific knowledge—the rational comprehension of things, *ἐπιστήμη*, which is the attainment of the few, is of inestimable value. But how do they get it? That is the great question.

Of course Plato saw, as we now know, that we can understand, or comprehend, any fact or object only as we see it as one in a class or genus, and in the light of a general law or principle. When, for example, we call an object a plant or an animal, we affirm a great deal concerning it, and imply a general idea of both plants and animals. When we say of this heavenly body, it is a planet, or it is a fixed star, we have indicated concerning it vastly more than the mere fact that it is one of the shining bodies that we see nightly over our heads, or in what we call the sky, or than the wholly uneducated man knows concerning it.

What Plato was thus inquiring for have, since his time, been called ideas. And knowledge is considered or made up of ideas; just as the material world is made up of the innumerable and endlessly varied objects that we see and handle around us.

These ideas are considered to be of two classes or kinds: the one class are idea-images that exactly represent the individual objects that we see and handle; and the other class consists of those general ideas that represent classes or objects, but no one of them in particular, or exactly as it appears.

Now these principles or general ideas, if they do not make, are yet essential to, what Plato called science or scientific knowledge (*ἐπιστήμη*).

§ 4. But how do we come by these principles? How do we gain true knowledge? and of what does it consist when contrasted with first impressions—mere *δόξα*, or popular opinion?

Plato saw that every individual thing that we see or can see is changeable. Not only may what is hot now be cold to-morrow, but the same substance may be solid, as ice or snow to-day—fluid, as water to-morrow—evanescent as steam, or invisible moisture or gas the next day. Nay, whatever is seen and observed to exist is, and must be, seen in some particular place. And the act of seeing it is one that occurs at some point of what we call time. And yet place and time are constantly changing for all things. Hence his starting-point: "There is no science of the variable." But what is the "variable"? Every object that we see is "variable." We can neither see nor touch with the hands anything that is not variable.

In the *Theatetus* this point is argued at great length. "Theatetus," in answer to Socrates' question, says that all knowledge rests on sense-perception. "He that knows anything appears to perceive what he knows, and, as it now seems, science is nothing but perception" (ἄισθησις). But after a long argumentation he is brought to confess that perception and science can never be the same; and that in order to have any science, or any true comprehension of things, there must be something besides mere sense-perception—something more than we can get by the mere observation of objects.

His argument is based upon the acknowledged variability and changefulness of all visible things. He takes a wide range for examples and illustrations, and finally reaches the conclusion, which he announces by saying: "Sight and hearing convey no truth to men." "But this, as it seems to me, is the result," he continues, "if all things are in motion, or a state of change, every answer, on whatever subject it may be given, will be equally correct, whether we say that a thing is so or not so, or, if you will, becomes so, we may not fix them by any definite assertion."

The remark that immediately follows is not in the language of any of our modern systems; but seems to me to be merely the assertion, that if we have no means of knowledge but sense-perception, we cannot only not have any general ideas or truths as the basis of our knowledge, but we could not have even so much as any general terms, or common nouns in our languages; we could not even say that "this is a man," "that is a horse," "that is a plant or an animal;" for man, horse, plant and animal are general terms. Or, as he says, we cannot even say of anything, "it is so, or it is not so."

Hence his first inferences; we gain and can gain no knowledge—that is, not science—by observation; we must have some other source and means of knowledge; for knowledge we have, that Socrates demonstrated beyond further question, so far at least as moral truths and relations are concerned. We may get in this way idea-images of individual things, but as Plato thought, not those general ideas, without which there is no science or scientific comprehension of anything.

Let us not, however, by our hasty generalizations, overlook a very important point. Sense-perception —or perception—never comes alone; there is always one more intellectual act that accompanies it—almost if not always two; the one, that almost always accompanies it, is an act of imagination by which we form an idea-image of the object we perceive; the other act which, in man, always accompanies perception, is insight—a seeing into the nature of the object. Plato fully recognizes this distinction, though he does not seem to have seen the fact, or at least to have done full justice to it, that the latter—insight —always accompanies sense-perception. Perception he calls *ἄισθησις*, whereas insight is indicated in his phraseology by its more appropriate term *νόησις*. By this latter process we discriminate, in the very act of sense-perception, between the *essential* properties of the object we see, and the mere changeable, if not changing, accidents which make up what he calls motion, *κινήσις*, so that when we see an object we see also its essential nature, and we can say not only that it is, but also what it is, as a man, a horse, etc.

We must always remember that the words *εἴδος* and *ἰδέα*, which are translated "idea," and which are in fact two Greek forms of one word, are derived from the verb *εἴδω*, which means to see. Hence the noun *εἴδος* means the thing that is seen, as its first significance, and the word *ἰδέα* means the form or outward appearance of the thing. And both words are used very constantly to denote the form or appearance of the thing that is seen. Hence to the mind of a Greek, and to one in these times who is familiar with the Greek, they have a force that is not likely to be felt by other persons.

It may be well, however, to state explicitly that in our modern usage the word idea is used in at least four different senses. (1) In the first place it is used to denote an image—idea-image—in the mind that is just like the object we see. (2) The word is used to denote what is called an ideal, something that serves as a pattern by which we are to be guided in our efforts to produce something, or as a standard to which we compare objects, and which is considered to be more perfect than any reality we can have before us; more perfect, therefore, than any idea-image we can possibly have.

Then (3) we have what we call general ideas, which represent to the mind no one object, possible or real, but rather a class of objects — as man, horse, etc., by the properties that are common to them all. We sometimes (4) also speak of a collective idea, or one that denotes a group of objects, as a congress, a church, a forest, a landscape, etc.

Nor is this all. In our modern use of language the word "idea" is used to denote any thought, however complex. Knowledge is, in fact, considered as made up of ideas—ideas of things, ideas of classes, ideas of groups or collective wholes, as well as ideas of theories and systems. We often speak of a thing as an idea, when, perhaps, it would be better to say an opinion; except that the word opinion implies something of assent or belief, whereas the word idea does not.

We must remember that Plato no where gives a systematic statement of his theory of the nature of ideas, nor does he seem to have deliberately considered all the various meanings of the word which we, in modern times, have given to it. In fact it was scarcely used for this purpose before the time of Plato. It often meant the kind or form of a thing, as "the appearance of death," "the kind or type of a disease." It was scarcely used to denote a thought or state of the mind until it was so used by Plato.

I will therefore make a selection of passages from Plato, for the purpose of exhibiting his use of the word.

§ 5. And I begin with the one found in the *Repub-*

lic (B. X, c. i). He is there evidently explaining the nature of ideas to those who do not understand what he meant by the word.

Plato cites the case of a cabinet-maker, and as examples, bedsteads and tables. He says that for these two classes of objects, bedsteads and tables, there must be two ideas, one for all the bedsteads and another for all the tables. And the workman, "looking to the idea which is in his own mind," makes the lumber in the one case into a bedstead. But if he looks at the other idea, the idea of tables, and is guided by it, he makes a table. The artificer makes the table or the bed, indeed; but he does not make the idea. Not at all. "So," as he argues, "the Artificer who made all things must have had the ideas of them in His mind before He made them." "Not only all sorts of utensils, but everything also which springs from the earth. He makes all sorts of animals, and besides these things He makes the earth, the heavens and all things in Heaven and Hades, under the earth, as well." "You are speaking," said the hearers, "of a wonderful sophist" [wiseman]. "But tell me, do you not believe there is such an Artificer?" Then a question is raised about the creation of all things.

Plato illustrates his view by supposing that we take a mirror and carry it around everywhere. It makes images of all things, and these images of things are, in Plato's theory, to the things themselves as the objects we see and handle in the world of time and space are to the ideas of them which are in the Divine Mind.

In the case before us, however, Plato seems to confound, or rather not to discriminate between, what we, in the more exact phraseology of our day, distinguish by the two nouns, general ideas and ideals. A general idea, as I have said, *de*notes—or, as some persons prefer to say, *con*notes—many individuals in a class, without indicating or describing any one of them. Whereas an ideal is the idea of some one thing—a pattern, in fact, in the mind, like which we try to make and fashion something, some work of art.

In another place Plato compares the objects that we see to the shadows that we might see in a cave, if we were standing at its mouth looking into it, with the light behind us, and the ideas floating in the light behind and casting their shadows by us on to the wall of the cave, which is opposite to the light (*Rep.*, B. VII, c. i).

But I think that with the aid of modern science we can give a better illustration of his thought on this point than Plato has done. Take the case of a lamp before a concave polyhedral reflector. Each one of the little facets gives forth an image, no two of which are in the same plane or exactly alike. The lamp is one and the same for them all. So in Plato's theory, there is in the Divine Mind one idea for all the objects in any one species—the idea is general and one, however many and numerous the objects in that class may be—that is, the idea represents the objects by all the properties that are common to them all, but does not represent any one of them in particular.

But as patterns or paradigms, they may be either what are called ideals or general ideas, though the language Plato uses would seem to imply the latter.

§ 6. What then was Plato's theory of the origin we have of our real knowledge? We must keep in mind his doctrine that we can get no knowledge—that is, no scientific comprehension of things, by observation of the things themselves—that is, by what we in modern times call *a posteriori* method.

I begin with a passage in that beautiful little dialogue, the *Meno*. It will be remembered that Plato no where gives a systematic statement of his views on this subject. His theory is to be deduced—deduced, I say, for he no where elaborately states it—from scattered passages that are to be found throughout his works. And it must be remembered, too, that he says nothing in his own name. He puts all of his thoughts into the mouth of Socrates, as chief interlocutor in his dialogues.

In the dialogue now under consideration Plato is trying to show the nature of virtue. But to understand the nature of virtue we must fall back on a general principle, or idea. And here, as everywhere, we can understand any particular thing, as he thinks, only as we "see it in the light of its principle." What is virtue? and how are we to distinguish it from something that is of a very different character? Or, in other words, what is the origin and value, or validity of our idea of virtue? The case is the more important and instructive because it was invented and given for the purpose of illustrating this, very point.

The example is as follows: Socrates calls a boy before them and making a rectangular figure on the ground, asks the boy what he calls it? He then says: Suppose the sides are equal and each side is two feet long, how many feet in the surface? The boy answers, after a moment's reflection, four. Then Socrates says, suppose each side were just twice as long as at present, that is, four feet, what would be the area? The boy answers at first that it would be just twice as much, or eight feet. Socrates continues to ask the boy questions, one after the other, until he sees that his first answer was wrong, and that the space with *twice* the length of the sides would be, in fact, *four* times as great, or sixteen feet.

During all this time Socrates keeps calling attention to the fact that he is not *teaching* or *telling* the boy anything; he is only asking him questions. And by this means the boy is led to a truth or an idea that he had not in his mind, or rather could not give expression to, at the beginning of the questioning.

§ 7. From this Socrates, or rather Plato, makes several inferences. The first, in order, is that the mind or soul is something entirely distinct from the body: the next is that the mind or soul had in it, before these questions were put to him, the truth, knowledge or idea, which the questioning merely called into his consciousness, so that he knew and was conscious of knowing it. And finally in this way and in this connection he infers not only the immortality of the soul, but also its pre-existence. "If, then, the truth of things," that is, their ideas, "always exist in the soul, the soul itself must be immortal." And again, "if he always possessed the truth or the ideas, he must have been always in being, as a person." But even if he had acquired these ideas at any previous time, it could not have been in this life; it must therefore have been in a previous state of existence. Hence on this theory they are called innate ideas.

From this fact, or part of this theory, Plato infers that what we call education should be conducted chiefly by questioning. It is not the *imparting* or *conveying* of ideas to the mind of another, but it is reminiscence, memory, or the recalling of ideas, that we had in a previous state of existence and have forgotten since we left it to enter into the bodies we now possess. "For," says he, "all objects in nature making one whole being of one kind," or, as we would say, making one *summum genus*, and the soul having heretofore, "in its previous state of existence," known all things, "there is nothing to prevent a man who remembers at all—what we call learning any one thing—from receiving again all the rest," if he has but the courage and perseverance to do so.

It is manifest from this that Plato regarded knowledge, or true science, as made up of general ideas, and as but the collective whole or sum of ideas. And these ideas were not mere thoughts—mere *states of the mind;* they were something *in the mind*, something that could be in the mind before we were born, and in the mind even when the mind was not thinking at all.

I think it worth the while to pause here for a moment to make a remark that seems to me to be obviously suggested by this example. It will help to illustrate and make intelligible a good deal of what we shall encounter at a later stage of our discussions.

When Socrates asked the boy the question, how many square feet are there in a square whose sides are each of them two feet, he excited the boy's imagination. He could easily picture before his mind, by what we call an act of intuition, just such a square, and see by intuition of the picture thus created precisely how many feet there were. It was *intuition*, the looking *upon* the object or its picture by imagination and not *insight*, the looking *into* the nature of the object. And he answered at once and correctly. But when Socrates asked him how many feet in a square with twice the length of the sides, he had proposed a question that went beyond the ready exercise of imagination and mere intuition; the boy could not see at a mere glance of intuition any more than with a mere glance of the eye, if such an object had been before him, how many square feet there were in the figure; he must at least take time to count. But instead of that *he made a mere verbal inference:* If the side is "twice" as long, the area will be "twice" as great. There has been an immense amount of what is called philosophy, which has been the result of just this kind of mental exercise. It is a mere verbal inference or construction, with no intuition, much less has insight into the nature of the things that are spoken of.

But in the case of the boy, the answer, as we have seen, was wrong. And it is equally true that Socrates did not tell him anything—that is, "convey any idea into his mind." What then did he do? He began by asking questions that excited and called into exercise his *insight* into the nature of the case, and thus he led the boy on, step by step, to see not only that he was wrong, but also what was the truth in regard to the matter.

We have then *sight*, by which we see things when they are before us; *intuition*, by which we look *upon* them and imagine them as if they were before us when they are not; and *insight*, by which we look into them, even into the very nature of things and in some cases even into the nature of things that are not visible to the eye or subject to imagination at all in any proper sense of the word.

This reference to memory or reminiscence, as the origin of our ideas, is not a mere casual remark, an *obiter dictum*, but it is asserted emphatically and with reiteration. "Meno," in the dialogue already quoted, had asked Socrates, "But how say you this, namely, that we do not learn, but that what we call learning is only recollection? Can you teach me that this is so?" Socrates replies: "You are very crafty, Meno. You ask me to teach you something when I have just told you that there is no such thing as teaching, but only reminiscence." And so, repeatedly, he calls attention to the fact that he had told or taught the boy nothing, but only quickened his memory by the questions he had put to him.

And so, likewise, the inferences he draws from the case imply that the act is one of memory or remembering alone, and that the ideas are substantial realities *in the mind*, and not mere thoughts or *states of* the mind. From this case, as I have already said, Plato infers, not only the pre-existence of the soul in a different state before our birth, but also its immortality in some future state.

§ 8. But in another connection Plato speaks in different terms of this process. In the *Republic* (B VII, c. 10) he speaks of these ideas, which he has come to regard and to affirm to be the only real things in the universe—all else being but mere shadows of the ideas—he affirms, I say, that they are seen by "the reason and not by the eyes," (*νοήσειν, αλλ' ὀυκ ὄμμασιν*), and he says (c 11), "which things can indeed be seen by reason," or, as we had better, perhaps, translate the word (*νοήσις*) insight. He also uses the word *λόγος* and *διάνοια*, to indicate the kind of mental action. In (B. VII, c. 3 and 4) Plato speaks of the dullness of our intellect, comparing it to our experience in regard to vision. When we are passing, as he says, either from great light into partial darkness, or the reverse, from darkness into a very strong light, the eyes are blurred, so that we cannot see distinctly. And when we consider that the same thing takes place in reference to the soul and its ideas, when it enters the body, we shall not be surprised at the defect in the intelligence or insight of most men. But we should rather consider that the soul, "in coming into this world and entering into the body, has come out of a more brilliant existence and is now partly blinded by change of condition; or else that it is emerging out of gross darkness into a more luminous state of being, and thus one will congratulate it on the former life while he pities the present."

The two theories are thus distinctly set forth: that of innate ideas which were in the mind before birth in such a way that our acquisition of knowledge now, and in this state of being, is but properly a form of reminiscence or recollection, and the other, that these ideas are a matter of insight, to be obtained, not by observation of external things, but by intuition or introspection. In either case they are supposed to be realities within us; in the one case they are *called up* by recollection, so as to form a part of our real knowledge, and in the other they are *discerned in us* by an act of intuition or introspection.

And yet if we look a little deeper or sharper into the subject I think that we shall see that the two theories thus suggested are not at all inconsistent with each other; and that we may be doing Plato an injustice to so speak of them. If the ideas were in the mind, but forgotten, we might easily speak of the act of recalling them as one of insight, discrimination, and possibly reasoning; the voluntary effort which we are conscious of making to recall them might easily be regarded and spoken of as looking for or into them.

In the example I have cited, Plato might be regarded as having in view only those ideas that make up what we call intuitive or *a priori* knowledge--that is, such knowledge as we gain by mere insight and without any actual cognition of any object. Of this kind are all the self-evident axioms that lie at the foundation of mathematics, and indeed of all other sciences. I know, for example, that this object is an apple, that is, it belongs to the class apples, by seeing it, handling it and tasting it. I know, also, as soon as I see that it is an apple, that it grew on a tree, is good for food, contains within it seeds that will germinate, grow and produce other apples. I know, too, *in that case*, that the seeds are not likely to produce fruit of precisely the same kind, size, color, flavor, etc., as the apple from which they were taken. But all this is *a posteriori*—that is, I know it after having seen the apple, seen other apples, formed a general idea of apples and known something of their growth and the laws of their reproduction.

But if we refer again to Plato's example, we find truths or ideas of a different order. We know that two and two are four, not from observation, but from the nature of the case and insight into the nature of number. I know that this object is a man, and that object is an apple, because I have seen men and apples. But it is no matter what they are, whether men, apples or peanuts, two and two of of them must and will be four. A square, no matter of what, paper, cloth or land, or water surface, two feet on each side, will contain four square feet;

and if it is four feet on the side it will contain sixteen square feet.

And so of all the truths of pure mathematics; and the axioms of the physical sciences as well. Whatever is extended is divisible. No mere process of analysis or synthesis, such as we can perform in our chemistry, can either create or annihilate a particle of matter. Hence the sum of the parts must be equal to the whole, and the whole must weigh as much as, and can weigh no more than, the parts that went into its composition.

But we explain the origin of this knowledge—this part of our knowledge—by reference to intuition or insight. Does the act disclose or discover eternal ideas that were always in our minds? Does it awaken memory and recall ideas that we once had in a previous state of being, but have now forgotten? This was Plato's theory, and it matters not so far as that is concerned whether we get them by recollection or by insight.

We can understand the process and the facts in the case just as well, however, without supposing that there are any ideas in the mind, but only a change in the state and condition of the mind. And I think that this latter view is the one towards which philosophy is tending, even if it has not reached it already.

We will suppose, for the sake of illustration, that I have never seen an alligator, never, in fact, have heard or seen the word before. But now I have one before me. I see it and *know what it is.* Had I an idea of it—or rather of the species—in my mind before, though lying latent and (perhaps) dormant there? That would be in accordance with Plato's theory. Did I form an idea of it while looking at it? That would be in accordance with a more recent theory of knowledge. Or, on the contrary, is there no idea, or idea-image of the case, but only a change in myself? I have just eaten my dinner, but in a few hours I shall be hungry. Is the hunger a thing that comes and goes? or is it a state of the system? Is it a thing that is "formed" within me? Or is it only a state of myself that I denote by that name? Before I saw the alligator I was ignorant. After I had seen him I am knowing what he is, both the thing and the meaning of the word. Is there anything in all this, more, or other, than a change in myself, the state or condition of my mind? As I have said, I think that such is the theory of knowledge to which we are tending.

We have then before us two of the passages in which Plato makes, as it seems to me, the most distinct and lucid statements of his theory of the nature and origin of our ideas. But he no where gives us a systematic or connected statement of his theory. We are left, therefore, to do the best we can by making our own selections and grouping of what seems best for our purpose.

§ 9. If now we consider the two examples we have cited, we shall find that Plato has been considering each of the two parts into which all science or scientific knowledge is divided, or rather the two parts of which it is composed. The one part I have already designated as *a priori*. It is sometimes also called absolute, because its truths are universal and admit of no exceptions. It is totally independent of experience and observation, and would have been just as true as it now is, if no one thing had ever existed in heaven or on earth. We get it not from looking at things themselves and studying them by means of our organs of sense, but by looking into their very nature by an act of insight, as we now call it, which is the *νοήσις* of Plato, and so often occurs in his writings as contrasted with sensation and sense-perception, *ἄισθησις*.

Take as an illustration the truths of geometry. And, to be more specific, take what we know of the triangle, as the length of any two of its sides when taken as a continuous straight line, is always greater than the length of the other line or side; the sum of its three angles is always the same as that of two right angles; the area is always one half that of a rectangle of the same base and height; and so of all the other propositions we affirm of triangles, whether in our geometry or trigonometry.

Now, we do not have these truths by actual observation and measurement. We reason from the nature of lines and angles, and from that of the triangle in particular. In fact the triangle itself is a fiction; there is no such thing in nature; triangular *things* there may be, and are, in abundance, as a triangular piece of paper, of cloth, or of land.

Nor, in this reasoning, do we assert, assume, or prove the *existence* of anything. There need be, for the purposes of our knowledge or our demonstration, no one thing that is triangular in shape in heaven or on earth. What we are proving is merely the conditions and possibilities of existence, so that if anything, no matter what, or where, or when, does exist, has existed, or shall ever exist, that is triangular in form, these and all the other propositions we can demonstrate concerning triangles in our geometry and trigonometry are and must be true of the one that thus exists, and of all that do or can exist.

In Plato's theory all these ideas of triangles, circles, as well as all general ideas of existing things, and all ideas of the things that can be made to exist, are innate. They are in the soul, and were put there by the Divine Mind before the soul was united with the body, or we were born into this world. But on another theory they are formed in the mind, and on another theory still, they are only states of the mind itself, as we shall see more fully in the following Lectures in this course.

Now, all pure mathematics is of this kind. So, too, are the fundamental principles of logic, as we shall see in the next Lecture. So, also, are the first axioms of all the sciences. They begin by assuming certain truths or laws that are so obvious that they need no explanation or demonstration, or other attempt at proof. In all the Natural Sciences it is assumed that whatever is extended can be measured, and is, in theory, divisible; that whatever is compounded is made of parts that can be separated;

whatever is inert, not living, can move only as it is acted upon by forces outside of itself; and such like. And without these axioms, as they are called, no one principle, fact, or law of any one of the Natural Sciences could be asserted as a matter of human knowledge.

The second example cited, that of the boy and the rectangle, will be seen at once to belong to this class. And the truth—we should hardly call it the idea—is represented by Plato to have been innate—that is, in his mind, before he was born into this world, and his ignorance, when the question was first proposed to him, was regarded as a mere matter of forgetfulness, so that all that was needed was an act of recollection—an exercise of memory—which in this case was stimulated by the questions which are represented to have been put to him by Socrates.

For these reasons this part of our knowledge is called, as I have already said, sometimes *a priori*, sometimes *absolute*, and sometimes also it is called *abstract* knowledge, because it is true abstractly and independently of any facts or events that have been or could have been observed.

This part of our knowledge, although the last to come to distinct consciousness and formal statement in the order of time, is the first in the logical order; that is, it is presupposed and acted upon, before it is consciously seen and put into express form. And his fact is doubtless one of the reasons which led Plato, as it has led philosophers in modern times, to regard it as in some sense innate, that is, either as in the mind at and before birth, as with Plato, or as born in the mind, whenever any thing, object or event, occurs to call for it, as held in later times. The other part of our knowledge is regarded as resting on observation, and is, as I have already said, sometimes called *a posteriori* for that reason.

As a matter of fact all knowledge does begin with some act of observation. In this all philosophers and all theories of knowledge are agreed. Even Plato would admit this. The external objects exist and excite, through our sense-organs, our minds to acts of perception and the contemplation of objects. In these later times we call the result of the first stages of this mental activity, an idea of the object—though I do not now recall any instance in which Plato has used the word in precisely this sense—I think he has never so used it—and to discriminate them from other kinds of ideas we usually designate them as idea-images.

But in order to see or discriminate any one object, there must be, as we now know, at least two, which, therefore, must be each of them finite—the one limiting the other in the domain of real things, and also different from it in some one or more of its properties. Thus, if we see an object that is white, there must be another object in the field of vision that is not white, which, therefore, limits the one I see and is outside of it, and must also be of a different color, or shade of the same color; else I could not see it at all.

Hence there must always be two objects at least, in order that either one of them may be seen. But not only so, they *must* be different in one respect at least, as in the case of color, and they *may* be different in other respects, as form, hardness, temperature, etc. But they must also be alike in some respects, as in the case before us, in having color, or in being luminous in the light, so that they can be seen.

Thus every object in existence must be one in the collective whole, which we call the universe, or as Plato called it, ὁ κόσμος—that is, an orderly, arranged whole, made up, indeed, of innumerable parts.

But this is not all. Each object that is seen must be one—an individual object, individual and indivisible logically—in some class or genus. But how do we come by the idea of the class or genus? The objects we see at all we see one by one and individually; but *all* of them, that make up the genus, kind, or class, we never see at once. Nay, more, we never can see them; for many of them, perhaps millions of them, are gone irrevocably in the past, and millions, untold millions more of the same kind or species, may come into existence in the future. How, then, do we come by the idea of the class or genus? since our idea of the class can contain only those properties that are common to all the individuals in the class.

Now this is the question that Plato had before him in the first example, which I have already cited. Suppose the artisan had in his mind a definite idea, an idea-image, or, as we sometimes call it, an ideal, of what he was intending to make. How did he know that it was a table or a bedstead? Plato's argument, or rather his assumption, is that the idea must have been in his mind before he could have known or thought what it was, or would be, when it was made; that is, the general idea of tables, and not only the idea-image or ideal of the particular piece of furniture he was going to make, must have been in his mind.

I think that in modern times we have corrected Plato's assumption in this respect, and shown that the actual process is quite different from what he supposed, and therefore presents a very different problem and not at all the problem he undertook to solve. As we explain the phenomenon, the child first sees an object, a table; he hears it called a table, and thus gets the name and remembers it. He then sees another object that is called by the same name, and compares the two, one with the other. He sees still other objects that are called tables, and his idea is enlarged, and sooner or later he comes to consider what are the properties that are common to all tables, make up what we call the essentia of tables; or the differentia that distinguish tables and other articles in the genus or class furniture, from one another. But certainly Plato was right in holding that we must always have this idea in the mind before we can say of any particular article: "it is a table," or "it is not a table," if that is the case.

Now, although Plato does not speak of reminiscence in this case, yet his whole theory implies that the idea of tables, of bedsteads, and whatever else one would make, or even recognize and name, must have been in the mind before any act of making or of recognition could have taken place.

I have said that I do not remember that Plato ever expressly gives the name idea, or uses it in reference to the thought of an individual object, whether an ideal or an idea-image; the two are not quite the same in the more exact use of terms. The idea-image is formed by an actual inspection of the object and exactly represents it as it is, or rather as it appears to us at the time; while an ideal is what we form beforehand, and serves as a model or pattern after which we work and by which we are guided in the making of our object, whether it be a utensil of common use or a work of art.

In the case cited by Plato as an example, this idea-image, or rather ideal, is quite as necessarily implied and proved to have existed in the mind of the artisan, as the general idea by which he knew his works to be, one of them a table and the other a bedstead.

And so, too, in the application of the principle of the argument to the great Artificer of the Universe, the work of creation. Plato saw, and no man has ever more clearly seen, or more keenly appreciated the fact, that all things in the universe are in harmony, harmoniously and beautifully arranged, and for "the greatest good of the greatest number." And hence he is constantly insisting upon the proof thus furnished of the existence of a One Mind, or Intelligent Being, who is the Cause and Creator of all things. This point, as you will remember, he insists upon in immediate connection with the illustration first cited. This Artificer, he insists, must have had all these ideas of all things in His mind before creation, as truly and as necessarily as the artisan had the ideal of a table in his mind; so that instead of mere hewing and hacking the lumber to no purpose, his labors—the motions of his hands and the efforts of his will—resulted in producing the useful article which we and all men agree in calling a table.

But as the artisan makes tables individually and one by one, so the Artificer of the Universe must have created the objects that make up its whole, its Kosmos, one by one, though not necessarily as the cabinet-maker did, one at a time and in succession, one after another. Creation is an individual affair. It can act only on individuals. There is no possibility of the creation of a species except as we create the individuals one by one that make up the species. This is one of those fundamental *a priori* axioms, or intuitive judgments, which, as I have just said, must underlie and be presupposed in all knowledge, or scientific assertion, about anything whatever.

Plato's theory, therefore, necessarily implies the existence of ideals of possible things, if not exact idea-images of real things, in the mind both of man, the artisan, as well as the artist, and also in the mind of the Creator or Artificer of the Universe. And he argues, in regard to the artisan, that although he makes the tables and bedsteads, he does not and cannot make the ideas of them. And his argument is equally as applicable to the general idea, by which he knows that what he makes is a table and not something else, as to the ideal, by which he is guided in his work, so that what he makes will be a table or a bedstead, or whatever else he undertakes to make.

In fact, the one great object of Plato's teaching, so far as our present subject is concerned, was to show that all our general ideas must be innate in his sense of the word, that is, in the mind when we were born, and not, as in the later sense, born in the mind. He starts, as we have seen, with what he regards as the demonstration that general ideas which make up the substance and material of science, cannot be obtained by immediate sense-perception or observation of things themselves. And, as we have seen also, he does not discriminate between what we call ideals and general ideas, nor, in fact, does he appear to have ever carefully considered the difference.

Hence, thus far we have to consider only the two kinds of ideas: idea-images of individual objects, and general ideas of classes, species or genera. As we proceed, however, we shall soon find occasion to consider another class of ideas, namely, what we may call abstract ideas, that is, ideas of single properties or qualities of things, as whiteness, hardness, and such like.

But the question arises which reaches farther into the subject than Plato seems to have gone, namely, how are we to discriminate between ideas that are true and ideas that are false? Are not all innate ideas—that is, innate in his sense—true? Can we suppose that God would put into our minds an idea that is not true and does not truly represent its object as far as it goes? If so, how come we to have false ideas, erroneous ideas and erroneous opinions at all? In the case cited in the *Meno*, how came the boy to say eight instead of sixteen? Surely the word he used expressed the idea that was in his mind at the time, and it was wrong.

Are then *all* general ideas innate? Are innate ideas always true? In either case how are we to discriminate either the ideas that are innate from those that are not, and so are fictitious and false? Or if the discrimination must be made between the two classes of ideas that are really and alike innate, how and by what test shall we be guided in our discrimination? This a question that Plato does not attempt to answer.

We have then clearly before us Plato's theory of the origin of each of the two parts of human knowledge, whether we accept the one or the other of the two expositions—reminiscence or insight, and it does not appear that he discriminates so clearly between the two as modern philosophers have done.

But in both cases, and alike, he held to and taught the doctrine of ideas as *realities in the mind*, and not merely thoughts or states of the mind, and that in acquiring knowledge we get something into the mind whether by recollection or insight, and not merely undergo a change in the state and condition of our minds. He held that in the strictest sense of the words we "acquire ideas" rather than merely "pass from a state of ignorance to that of knowledge," just as the body may be said to pass from a state of rest to one of fatigue, and from a state of fullness to one of hunger. And Plato's theory has given the forms of expression and the phraseology that are in use and have been in use, among all European nations from his day to our own; just as we continue to speak of the sun, moon and stars as rising and setting, etc., according to the old Ptolemaic system, although no well-informed man now believes that theory.

We have seen that in Plato's theory, knowledge or true science, ἐπιστήμη, as opposed to mere first impressions and popular belief, δόξα, consists of the two elements, intuitive axioms, or self-evident truths, as we call them, and general ideas; both of which he considered and called ideas. But in modern times we speak of idea-images as well as general ideas, which we consider as parts of knowledge.

§ 10. But there is another element still, which Plato often speaks of and calls ideas, and that is, ideas of the separate properties of things. Idea-images represent individual objects; general ideas represent species or classes of objects, but no one in particular or specially; while the ideas we are now speaking of, represent only single properties of objects, and are sometimes called abstract ideas, and are always expressed by what we call abstract terms, as whiteness, courage, justice, etc.

In the *Parmenides* Plato discusses this class of ideas. He instances such properties as "humanity," the characteristic of man; "heat," the characteristic of fire; "beauty," "justice," "greatness" (physical, as any great or large object), and such like. And the argument he uses implies the same doctrine with regard to all other qualities, properties or modes, which we can represent by adjectives, and predicate of any noun: as when we say "snow is *white*," "iron is *hard*," "the rainbow is *beautiful*," etc. From these adjectives as well as from certain verbs, we derive abstract nouns, as whiteness, hardness, beauty, justice, life, humanity, similitude, etc. And Plato regards each one of these terms as expressing an idea which is in his mind. Consequently, each of these words denotes a reality, which, when considered as in the mind, whether in the mind of man or the mind of God, is called an idea; but which, when considered as belonging to something out of the mind, as a substantial object in space, is a property of that object. This leads to the notion of a substance without properties, mere being, **τὸ ὄν**, the **ὕλη ἄποιος** of the Stoics, to which God is conscious of transferring or imparting the ideas of His own mind; which ideas thereby become the properties of this and that piece of matter, making one to be water, another earth, and another some particular kind of matter, as iron, sulphur, carbon, or whatever else one may choose to name. Considered as in the mind, I say they are called ideas, but considered as out of the mind they are properties of things external.

This part of Plato's theory is the most difficult of all to understand if we attempt to look beyond the words he uses to the things themselves, and to realize the process which the words he uses really implies. We cannot imagine—I say imagine, for we can *suppose* almost anything—ideas passing out of the mind and being put upon or into matter. And yet this is what he affirms and what his theory implies.

These ideas, too, although originally in the Divine Mind only, are innate in our minds. We have them, and brute beasts have them not; therefore we are rational and intelligent, while they are not. They have all the senses and sense-perception as complete as we do. But they have no ideas, are not rational. They perceive, but do not understand; have instinct, but no wisdom or science.

And these ideas, like all the others, are eternal; they were not only in our minds before our birth, but they are in the mind of God; they are, in fact, His essence—not His substance, but His essence—that is, they are essential to Him, and He would not be God without them. And as St. John could say, "God is love," so Plato could say, "God is wisdom," "God is reason," "God is intelligence," and all external things are real only as they "partake" of these ideas, and they "partake of" or "participate in" them only because God has conferred upon or imparted them to these objects. We are intelligent because they are in us as ideas; and these objects are intelligible because they are in or on those objects as their properties.

This theory of ideas lay at the foundation of the Realism of the Middle Ages, as we shall see hereafter, and gave rise to the much-discussed question, whether universals existed before particulars. Of course the ideas of things, in Plato's sense, must have existed in the Divine Mind before any act of creation could have been performed. Not only the general ideas of the classes of things He would make, but also the abstract ideas of each of the properties they should have, or He should "impart" to them, must have been in His mind.

Hence Plato's theory of knowledge is intensely theistic. But I do not think that Plato was a pantheist. It is true that he made ideas the essence of God, *ὀυσία*, but this doctrine is more adequately expressed to modern minds, as I think, by saying that God is essentially intelligent, essentially a thinking Being, as contrasted with the unthinking objects of the material world.

It is also true that Plato regards and calls these ideas the eternal realities of the universe, and he speaks, more than once, of things seen and tangible, as having no real existence, as non-existing. But I think that what he meant, and all he meant, was not only that they are constantly changing, always in a state of change (*πάντα ρέι*), but also that they are of no great account anyhow.

Plato, however, was not alone in his view of the uncertainty and unreality of all visible things. Gorgias, a contemporary and friend, after whom Plato has named one of his most interesting and instructive dialogues, wrote a treatise fully in the spirit of Plato's teachings, on the things of nature, which he called "the things that are not or do not exist" (*περὶ τôυ μὴ ὄντος, ἤ περὶ φύσεως*); there was, however, a difference in the Greek between *ἔιμι*, *to be*, and *ὕπαρχω*, *to begin to be*, so that while the latter verb could be applied to whatever was transient in its nature, as all visible material things are, the former verb meant primarily to be, only; and so, by natural consequence, whatever is is eternal and always the same.

This difference between the two words, which were in constant use, prepared the minds of those who were familiar with them for a distinction between the two classes of things and for the use of expressions concerning them which we can hardly understand, and which seems to us to be contrary to the most obvious principles of common sense, if not to involve an absurdity—a manifest contradiction in terms.

§ 11. And not only was Plato not a pantheist: he held very strongly to all that constitutes the personality of God. Besides what we have already seen of his view of the personality of God in the acts of creation, he uses strong language also in regard to His providential care of his works. In the Xth Book of "The Laws," after a long argument to prove from the phenomena of nature and of observed things in general, that mind, from its very nature, must be self-active, and not inert, as all merely material things are, and that from a like mode and kind of reasoning there must be a One Mind, or God, over all things and in all things, he proceeds: "Since then ye see and admit that God sees all things, and hears all things, and knows all things, it follows that nothing that can be matter or subject of perception or knowledge can be hid from Him. And since we have agreed that God is good and the best of all beings, can we suppose that He is indifferent or inactive in regard to human affairs? With us inactivity is the result of indifference, cowardice or indolence." From this he proceeds to infer that God, being omnipotent, omniscient, and good, even the best of all beings, "must care for all things; either this, or that He sees and knows that they need no taking care of." "Let us then," he proceeds, "persuade the many men, by our reasonings, that by Him who takes care of the universe, with a view to the safety of the whole, everything has been arranged so that as far as possible each part of it suffers and acts what is best suited to it."

It may be well to turn aside for a moment to mention what seems to me to have been a curious disregard of the obvious meaning in the translation of a passage ascribed to Xenophanes, who lived about 500 B. C., or some fifty or sixty years before Plato. In the words ascribed to him by Diogenes Laertius (Bk. IX, c. ii, § iii), he is represented in the translation as saying that God is "spherical in form, in no respect resembling man; that all things can see and hear, but do not breathe." But it was customary for the Greek philosophers, especially those of the Italian school, to speak of the sphere as the most perfect figure, and hence of anything that they regarded as perfect as a sphere, or spherical in form. Xenophanes, however, does not say "spherical *in form*," as translated, but only spherical in "nature," ***ὀυσία.*** Hence what he says of God is, that He is perfect in His nature, and not at all like men, who are imperfect in most if not in all respects. Then follows what I have given in the commonly received translation. But if we take *τά πάντα*, though in the accusative before the infinitive, as really the subject of the verb, we may translate the whole sentence as follows: "God is perfect in His nature, and not like men; He sees all things, hears all things, but does not breathe;" that is, has no body—for bodies only breathe—and no animal life. And then follow immediately the words: "He is wholly intellect, ***νοῦς***—wise and eternal. Whatever is produced is perishable, but there is both soul, *ψυχὴ*, and spirit, *πνεῦμα*, and everything else is inferior to mind, ***νοῦς***."

There can be no doubt whatever about the translation of the passage in Plato; and the words are too nearly the same to allow of a doubt that he had in mind the saying which was ascribed to the older philosopher. Plato says, "Ye both of you agree that the gods [God] knows and sees and hears all things." The difference is that Plato uses the word ***πάντα*** for "all," and the word as given by Diogenes is ***ὅλον*** in the Greek, either of which may be translated "all" or "the universe." But this assuredly can make no difference with the question now before us, namely, whether it is "God that sees and knows all things," or "all things see and know." It seems to me there can be no doubt, and that it is but fair to give the old philosopher the credit of having said what is at least good sense.

Doubtless Plato comes far short of the Christian view of Providence and the Moral Government of God over all His works. But he was exceedingly wise for a heathen, and Xenophon has given us in his *Memorabilia* of Socrates, Plato's master and teacher, a fine illustration of the argument for the goodness and providence of God, by referring to the human frame, among other things; as the eye-lashes to keep dirt out of the eyes, the eyebrows and cheek bones to protect the eye from injury by blows and such like. This line of argumentation is like that which is used in modern times by Christians, with great force, as in the works of Paley, Lord Brougham, and the Bridgewater Treatises.

But it has naturally grown out of Plato's theory that we use abstract nouns denoting but one property, to a large extent, as if they were concrete. We say "humanity," when in fact we mean "human beings," the class as a whole, and "personality," when in fact we mean a "person." In this way we make the mere fictions of the abstractions real things and even efficient causes, and prepare the way—and the mind, too—for all forms of pantheism, polytheism. And even in all forms of atheism it becomes necessary to make this use of abstractions.

I shall have occasion to consider this point more fully hereafter. But I take the occasion in passing to say that this doctrine of Plato's with regard to the reality of ideas, and the unreality, the unsubstantial nature and constant changeableness of all visible things, has led from the very first to fixing attention on mere properties. And modes, and speaking of them as the real things in knowledge has led to their objectification, and in many cases to their personification, so that the mere properties and modes of things have been regarded not only as "real causes" in nature, but as objects of worship and adoration as well.

§ 12. It is manifest that Plato's theory of knowledge could give no impulse or encouragement to the prosecution of the Natural Sciences, which begin with observation and are prosecuted by induction. On the contrary, its influence was in the other direction —to that introspection that finds "ideas" and "knowledge" within, and also leads to that exercise of imagination or fancy which creates a world of "realities" of its own—such as they are—and thus leads to that mysticism which has formed a very important and conspicuous part of philosophy from his time to the present day.

There are, and always have been, in the world two classes of minds among those that are given to intellectual pursuits: the one class are practical men, who look at things as they are, and are disposed to begin their philosophy with the recognition and observation of facts. They are inclined to limit the word "knowledge" to what is thus gained, as is the case with our modern agnostics. The other class are, like Plato, of an introspective turn; and they would limit the word "knowledge" to ideas, whether innate, as with Plato, or created by the mind, as with our modern idealists, Kant and Hegel.

Aside from the inference from the nature of ideas, Plato has two lines of argument to prove the existence of God. One is, that which we use in modern times, from the order and regularity of nature and the appearance of design and thought in the objects of the world around us. He argued as the great Agassiz has done in our own day, that "intelligibility in the things around us proves for them an intelligent Author and Creator."

In the other line of argument, he reasons from the nature of motion, as in fact Prof. Pierce has done in his great work on Analytic Mechanics. Motion is of two kinds, he argues; the one kind is such as we see in the inanimate objects around us, produced in them by something outside of and external to them. Each act had its origin in time and is finite. But we see another kind of motion in ourselves that originates in us; *we move ourselves*. And yet we were not always in motion. There was a time when we began to move, and when there was no motion in us. But there must have been One Self-moving Being before all or any other motion began, the Mover of all things, and He not only must be self-moved, but He must also be eternal and omnipotent in His power to move and change things according to His own will, or rather according to the ideas that are in Him.

But I do not think that Plato meant to teach that external things, the objects and affairs of our daily lives, were unreal or non-existent in our modern sense of the words. But he did mean to teach that they are comparatively *unimportant.* He was born of wealthy, aristocratic parents, and therefore never had occasion to know the struggle for existence that comes of poverty; and he taught also that no real knowledge—none that is worth having—could be gained by studying the mere facts and phenomena of nature, by the inductive method, but rather that all wisdom and knowledge—all true science—comes from insight, intuition, introspection,—looking into and developing truth and from one's own "interior consciousness."

Nor again do I think that Plato ever indulged in that objectification and mere personification of abstractions which form so conspicuous a feature of his followers, the Neo-Platonists of the several grades in old times, or the philosophers of our modern times who are the most pronounced in claiming to belong to his school, or rather as not belonging to the school of sensationalists, materialists, and agnostics, who would limit all knowledge to what we gain by sense-perception alone. Here, as elsewhere, a man who is great enough to have disciples at all, is pretty sure to have many who do not and cannot, and perhaps none who do fully appreciate him, and who out-Herod Herod, by carrying some one or another of his principles to an impracticable, if not to a ridiculous and harmful extreme.

Thus the Neo-Platonists of Alexandria made a pantheism out of Plato's ideas. And in more recent times we have the abstractions that constitute but one of Plato's elements of knowledge, elevated and apotheosized into real causes, efficient agents, and made to do service as explaining all things whether in the material world or in the immaterial in nature, or in what is supernatural. But when we begin to use words in this way, we become unintelligible and never say what we really mean and are always saying something that we really do not intend to say. Of this we shall see abundant examples before we get through these Lectures.

It may be well to get a taste for this style of writing before we go any further. I quote from a work by a disciple of Cousin, translated by the late Dr. C. S. Henry. It is in what he calls an "Exposition"—the reader will remember that the word "exposition" is used in two quite different senses—of the "Alexandrian Philosophy." "In the Primary Unity pure and absolute, there exists no distinction. . . . . From this unity emanates the intelligence which is its reflection. . . . . This emanation produces another emanation, . . . which is the soul, a motive force, the principle of motion. . . . When the unity had produced intelligence, . . . there also commenced duality, . . . unity became multiple. . . . The intelligence contains all the ideas of possible things. . . . Ideas being at once intelligence and the objects of intelligence, there is an absolute identity between ideas and realities; that which knows and that which is known, are one and the same thing. . . . The soul . . . tends necessarily to produce ideas outwardly, and the ideas produced are the different souls. . . . Matter is the habitation, the temple, which the soul itself constructs in order to dispose in it its forms. . . . From all this it follows that the world is only a great soul, informing, giving form to matter by the ideas of the souls which it produces. . . . True science is acquired by means of illumination. It is less a science than an intimate presence of God in the soul." (*History of Philosophy*, Vol. I, pp. 212 and 219.)

This is but a specimen, and it would not be difficult to match it by quotations from modern authors. In fact Sterling, in his *Secret of Hegel*, has claimed quite an identity between him and those Neo-Platonists of Alexandria.

However Plato laid the foundation for all the philosophy which regards ideas as more real and more "substantial" than the visible and tangible things of this world, and for that use of language which grew out of such a view of things. There is a passage in Plato that I will quote in reference to this point. It occurs in the *Theatetus*, § 33. After discussing the uncertainty of all ideas derived from the observation and study of external objects by the senses, he asks, "Will you not then feel obliged to me if I assist you in finding the true opinion?" "How should I not," says "Theatetus," "be exceedingly obliged to you?" Socrates answers, "Look around then, and see that no profane (ἀμύντος) uninitiated persons hear us, for there are such who think that nothing else exists except what they can grasp with their hands, and who do not admit that the actions and the creations of our minds *or anything that cannot be seen by the eyes*, is to be reckoned among the things that have or partake of essential being" (*ὡς ἐν ὀυσίας μέρεε*).

§ 13. Naturally enough, therefore, it would follow from Plato's theory, that material things—though existing around us—are mere accidents of no great or essential importance, anyway; and that the only things that are of real importance and of permanent and substantial value, are the ideas that are within our own minds. And his *Timaeus*, which is his account of the orgin and development or evolution of the universe, is based on this view, and is in the line of its development. He postulates three distinct things that existed before the formation of the universe, being, *ὀυσία*; place, *τόπος*; and generation, *γένεσις*.

But these are all abstract terms. By *ὀυσία*, Plato seldom (so far as I can remember never) means matter or any substantial thing; it is rather the nature of the things, In another form, and one which is more intelligible to us, it would be "the essential properties of things." And thus we should have as the theorem, the properties of things, space or a place for them to exist in, and generation, production or creation, or the process by which these properties could be conferred on the *τὸ ὄν*, or substantial matter to make of it the varied things we see about us.

Hence the three here postulated are (1) the properties or natures of the different things that exist in the universe; (2) a place for each one, and (3) a a time at which it was brought into existence.

But besides these three, the whole course of Plato's philosophy implies that there was (1) matter to work upon (for he apparently had no idea of the creation of matter out of nothing), and (2) God or Mind itself, in which or whom were the ideas that make up the nature of the things and by whom they were imparted to the matter.

And although he believed in substantial matter, and in God as the Creator or Artificer of all things in the universe, he recognized also the fact that there is an element of necessity, or certain necessary laws and conditions. that must be observed. Thus in the *Timaeus*, "We ought also to speak of things that come of necessity, for the production of this world results wholly from the co-operation of intellect and necessity, intellect indeed ruling over necessity." And this "necessity" he finds in the nature of matter, in its four forms—fire and water, earth and air.

These ideas that make the nature of the things or the patterns of all things that exist, Plato regarded as the substantial realities of the universe; they are eternal and always the same, (*Timaeus* xxvi), the are the very essence of the Divine Mind.

But these invisible things that constitute, in Plato's theory, the only realities, are for the most part denoted by abstract terms; they are in fact only the properties and modes of things considered as things themselves.

And here it may be well to pause and say a word as to what we mean by abstract terms, as the word is used in several different senses and connotations.

In its strictest sense, an abtsract term is a noun which, in regard to its etymology, is derived from an adjective or a verb, as from white, whiteness; humble, humility, or from the verb to live, life; and from to move, motion; and denotes only a property of things or modes in which they exist.

But in the second place it is very common to speak of general terms, as man, horse, table, chairs, etc., as abstract terms, and thus include the two abstract and general terms in the same category and ignore the very important difference between them the one, as just said, denotes only the property or mode of things, and the other denotes the things themselves by those properties that are common to all that are included in the class.

Then again, in the third place, some men—our modern agnostics for example—call all the names that denote *invisible things*, abstract, as the mind of man, and even the Supreme Being, God Himself.

But manifestly nothing could be more fatal to clearness of conception and soundness of reasoning, than the use of one and the same word to denote these entirely different classes of objects: (1) mere properties of things; (2) material or tangible things themselves considered in their essential properties, and without regard to their varying, and variable accidents; (3) God Himself, the most real and substantial of all things, who is both a substantial Reality and a Personal Being, the One Person. Therefore, His name, like the name of all individual objects, is neither abstract nor general, but individual—or, as we usually call it, a proper name.

I call attention to this varied use of the term "abstract" at this early period, not only on account of its importance, but also because I shall have occasion thus to use it in these Lectures, and the knowledge of this fact, and the constant mindfulness and appreciation of the fact will be indispensable to the right understanding of what I have to say.

In one important sense, general terms stand midway between the concrete terms that denote individual things, and the abstract terms which denote only single properties or modes. They constitute a class by themselves, and are as unlike abstract terms as they are unlike concrete terms, in their more modern sense. But at any rate they do not objectify mere properties.

Plato, however, in his theory of knowledge, laid the foundation for that use of abstract terms which has formed a very conspicuous and significant feature of most of the metaphysics that have prevailed since his time, and has, to a large extent, influenced the theological dogmas that have been approved in the Christian Church, and forms the basis of, or at least is necessary to every form of polytheism, atheism and agnosticism that has yet been proposed in the world—a conclusion which I hope to make abundantly obvious before I reach the close of these Lectures.

But Plato himself was not a materialist. He was no pantheist, nor yet a polytheist, and, least of all, an agnostic. To him God was one, the Mind or Νοῦς of the Universe; eternal, uncreated, and the Creator of all things; so that in Him, in the most important sense, all things that are, or exist at all, may be said to "live and move and have their being."

Doubtless we can see that his theory of ideas implied, or contained among its elements, errors, and perhaps we may say, absurdities and contradictions. These absurdities, however, become more apparent in the writings of his followers than they are in his own, and in the Neo-Platonists of Alexandria they bloom out in the most unintelligible paradoxes. They are, however, scarcely apparent in his own writings, and he remains to this day, with the great majority of speculators, the Prince of Philosophers, the expounder and source of the most precious truths.

But great as Plato may have been, we can hardly doubt that there have been other men that were as great as he was, since his time. But even if not, then, according to the saying, "a dwarf standing on a giant's shoulders can see farther than the giant," there may have been men since his time, who, though dwarfs comparatively, standing on his shoulders, could see farther than he saw.

And we have a series of great men since him, who have devoted their time and talents to the solution of the problems which so intensely interested him. We may name five at least of them, whom we must regard as original thinkers in this line of investigation, or who, at all events, have made their mark and have left and will leave their impress as deeply stamped on the course of thought and the progress of philosophy as Plato himself. The five I have in mind, making with Plato six in all, are Aristotle, Descartes, Locke, Kant and Hegel; each of whom may be regarded as standing on the heads, one above another, of those that preceded him. And of each of these men I shall have something to say as we progress with our subject.

LECTURE II.

ARISTOTLE AND THE THEORY OF COGNITION.

§ 1. ARISTOTLE was born B. C. 384, and Socrates died B. C. 399. Consequently, Aristotle never saw Socrates. But he became a pupil of Plato 367. He was highly appreciated by his master, who is said to have called him the mind or brain of his school. And it is related that when Plato delivered that most obscure of all his dialogues, the *Timaeus*, the other pupils, losing their interest, went out one by one, so that at the close of the discourse only one remained as a listener, and that one was Aristotle.

Plato and Aristotle were of quite different mental constitutions. Plato was essentially poetic and aesthetic; whereas Aristotle was essentially scientific and practical. In attempting to set forth Aristotle's theory of knowledge, we encounter great difficulties. His language is very peculiar and obscure. He seldom wrote out anything elaborately, and it is the opinion of many of the best scholars, that part, at least, of what is now ascribed to him consists of notes which may have been used by him in delivering his lectures, and possibly of notes that were taken and elaborated by his pupils, and possibly by disciples who supposed they were writing what he would have said, if he had spoken on the subject at all, though he had never done so.

§ 2. But as all knowledge must be expressed in words, and in some form of language, we will first consider for a few moments something of the nature of language in general.

Language consists of words, which are in themselves only arbitrary signs of the things we think and speak about. And we understand the words only by reference to the things and events which they are used to denote. The nouns denote things. And as we perceive objects individually and one by one, we should have only individual and proper names, if we had nothing but sense-perception. In that case each noun would denote some one individual object, just as the names of the persons around us, and of the rivers and mountains on the surface of the globe, now in common use, denote each one of them, its own individual object and no other.

But if all the names in a language were of that kind, there would be no science, and what we should have could hardly be called knowledge, and we should see objects before us and around us as we do now, and might make a sound, a noise, which would be in a sense the name of the thing. But we could say nothing more about it; we should have in fact no "knowledge" in regard to it, and could of course convey or communicate none to others. We could not call the object a man, a horse, or a dog, for we should have no such words, and could not know what they mean if we had, for to know what they are, or the words mean, is to have in the mind the ideas which the words express.

This, as we have seen in our last Lecture, was the starting-point with Plato. We see objects individually and one by one. But as we can have no knowledge without general ideas, and as these objects are constantly changing, never continue long the same, or in the same place; and we could say of this object indeed it is James or John, but we could not say he is a man, and both of them are men, or belong to the class "man." We have seen too what was Plato's theory or account of the nature and origin of these general ideas, or the ideas that we express by common nouns or general terms. Plato, as we will remember, thought these ideas were in the mind *naturally*, at birth, in fact, and put there by the Creator of all things before we were born. This, as I have said, was the first theory that was proposed on the subject as a solution of the problem. And it has been, with some modifications, the favorite theory with philosophers of a certain school, until the present time.

But somehow or other, we came to have common nouns or general terms that denote objects by classes (or rather classes of objects), and do not at all discriminate or point out any one of the objects in the class in particular. With most or all the human beings around us we have special relations and duties.

Hence we need names that designate them, individual or personal names—"proper names," as the grammarians call them. But besides these few cases, persons, cities, towns, nations, rivers, mountains, etc., we deal with the objects and speak of them only in general, and have for them only the general names that denote class. Thus, in Natural History we deal only with species and genera, or at most with varieties, and sports or monsters. We speak of foxes and wolves, and very seldom have occasion to refer to any one in particular. For most purposes, animals and plants which are of the same class are all the same to us.

These common nouns, however, denote the objects by those properties only which are common to the class, and are therefore essential to it. And these properties will be *essentia*, in the technical sense of the word, if we regard them as showing the *comprehensiveness* of the class, how far it extends in the inclusion of individuals; but *differentia*, if we regard them as constituting the distinction or difference between that class and some other class.

But in any view these properties are essential to the class, and to every individual in the class—except, perhaps, acknowledged monstrosities, which are considered as belonging to the class, though exceptions in some respects to the general rule. Thus, though the possession of reason, and the ordinary mental faculties are regarded as one of the essential characteristics of human beings yet I suppose that an idiot, or monster of any other kind, would be regarded as a human being, if he had been born of human parents, notwithstanding his exceptional peculiarity.

But the controlling fact is that the great mass of the objects around us—the untold millions of objects that are objects of thought and included in science, each and any one of which may be, if it has not already been, an object of observation and study to some human observer, is denoted by general terms alone.

These terms imply, and are based upon a classification, made by our ancestors long ago, in the genealogy of thought and science. And they were based, when they were made, upon what were then regarded as essential properties, and if essential, then unchanging, so that before the first individuals of that class came into existence, there was no such group of properties as a group anywhere, and when the group of properties ceases as a group, the species or class will be regarded as having become extinct.

Geology is full of illustrations of this point. Geologists tell us of races of animals that first made their appearance in such or such an age, and became extinct in such another age; the trilobites, for example. But why say that they first appeared in the Silurian, if that be the case, and became extinct in the Carboniferous? There were animals before, and there have been almost innumerable classes of animals since. But there were, even before that period, as there have been since, no animals that had that group, congeries, or combination of properties, which at the same time, though in different relations, make up the *essentia* and the *differentia* of the trilobites. Hence we say that whatever else they may have been before that period, there were no trilobites; and there have been none since. No science of evolution has overcome, or can overcome, this fundamental fact nor seek to do so, in the use of language, and whatever may be true of "the origin of species" as a matter of Natural History—this is the law, and the fact as well, in regard to those natural classifications, which we make in the acquisition of knowledge, and indicate by common nouns as we pass from the ignorance of childhood to the scientific attainments of the most mature wisdom.

As we have seen in the previous Lecture, Plato thought that these general ideas were in the mind at birth, put there before we came into this world, and constituted the substance of the knowledge of things which we had then, and which we lost only by forgetting it when we came into this world, and during our infancy—the period of our mere animal existence. Aristotle, as we shall see, dissented from this view of the orgin of general ideas.

§ 3. Now one of the peculiarities in the use of terms that occurs so often in Aristotle's Metaphysics, and renders it so very difficult to understand him, is one that is very common in many modern writers of a certain school,—namely, that instead of using those common nouns which denote things by their *essentia* and *differentia* (§ 2), they are constantly using an adjective with an article before it as the subject of their propositions. But an adjective denotes but one property of an object, and whether simple or complex, it is for all occasions but one, as white or black, human or divine, finite or infinite.

But in every idea of things, or of a class of things, there must be indicated by its very name more than one property, in order that we can understand it, reason about it, or even talk about it, any further than to inquire what it is and to ask about it, so as to know what is really the subject under consideration.

Thus to take an example from a modern writer, Cousin cites "the infinite" as one of the terms expressing an idea that cannot have come from mere sensation. But we naturally ask, "the infinite what?" The adjective, even if it were a positive term, instead of being negative, as it is in this case, could give us only the one property, and not at all the *essentia* and the *differentia* of any class. It, in fact, makes a class for the occasion. But what can a class include? Only these things, of course, of which we may predicate this adjective—infinite. Thus if I say "the white," I include in the class all things that may be said to be white, and the objects thus indicated[1] may have no other property common to them all. So in regard to the word infinite. We say of time, "it is infinite" (or at least Cousin does), and so of space, "it is infinite," and of number (sometimes), "it is infinite," and of God, "He is infinite." But manifestly these four—time, space, number and God,—even if there are no more, do not make a class of which any one thing can be predicated or said except that they are infinite.

It is indeed quite true that we do sometimes use the adjective in this way without any violation of the laws and conditions of intelligibility. As for example, in the parable of the great draught of fishes. We read that it contained good and bad, and that the fishermen divided them into two classes, gathering the good into their vessels, and throwing the bad away. We have no difficulty here, because the context clearly shows what was the genus of the objects, so to speak, that was in the mind, and that goodness, and its opposite, badness, was made for the occasion the *differentia* of the two species into which the genus was divided.

But when adjectives are used in this way and no proximate genus is either given or clearly indicated, it is difficult, and sometimes quite impossible, to tell what is meant and to know whether to assent to or dissent from what is said.

A writer whose work on Aristotle I have in my hand, Wallace, says, in speaking of Plato's philosophy: "The end, therefore, of philosophical study is to see the one in the many, and the many in the one." But we naturally ask, the one what? and the many what? Without wasting words, or taking unnecessary time, I will say that what he really means is that we must see each object ("the one"), as an object in the class, ("the many"), and we can see the class, "the many," only as it appears in "the one"—that is, the properties that are common to the class, are to be seen as present among the properties of each of the individuals in the class.

Now Aristotle is constantly offending in this way. It is indeed true that the Greek language afforded some peculiar facilities and inducements for doing so. The Greeks, as is well known, varied their adjectives so as to agree with their nouns in gender and number as well as in case. Thus they could say *τὰ ἄπειρα*, the infinite, or *τὸ ἄπειρον*, which we usually translate by the same words, "the infinite." But the former form of expression suggests to the one who is familiar with the Greek idiom, the genus or class of objects of which the only property common to all the individuals in the class, is this infinity; while the latter form would suggest rather the property of infinity or the subject of the remark that was made. In our language, in order to distinguish the two things, we should translate one phrase "infinite things," and the other "infinity."

Again, Aristotle is constantly using abstract terms as if they were concrete, or at least he so uses them where we expect to find concrete terms, and must replace abstract terms by those that are concrete, if we would find any meaning in his words. For example, he discusses the question with regard to "generation" and "motion." Is generation eternal—has it always existed? So with motion, is it eternal? And in these discussions he apparently never raised the question with regard to the substantial reality of these processes, or mere modes, any more than he did when he was discussing the question with regard to matter, and even God Himself. It is true that he arrives at the conclusion that motion from its very nature cannot be eternal, by a line of argument which, stated in terms that are intelligible to us, is equivalent to the demonstration that matter cannot have always been in motion, for if so it must be able to move itself. So with regard to generation. It is a process, and as such there must have been a first act or cause, as well as an Infinite or Eternal Being that produced it, as well as "matter" on which He acted.

And in fact Aristotle, though expressly repudiating Plato's theory of ideas, accepted it nevertheless, or its consequences, so far at least as to use the abstract terms which denote only properties and modes, as if the properties and modes were as substantial as the concrete things themselves. And thus, while rejecting one of the elements of Plato's theory of ideas, and giving an entirely different view of their origin, he accepts the other most conspicuous one, namely, he regards them as the proper objects of discussion and speculation, and as making up our knowledge, when inquiring into the "nature of things," so called.

§ 4. But to pass to the more immediate subject of our Lecture—Aristotle's theory of knowledge.

Having been a pupil of a master so great and so much admired as Plato, that master's theory of ideas as the characteristic features of his theory of knowledge could not fail to be much in his thoughts and occupy a conspicuous place in his discussions. But Aristotle was of an entirely different turn of mind from Plato. He could not fully accept his master's theory of ideas. To his mind they were as elements or means of knowledge, no explanations of the things and phenomena we see around us. Suppose, for example, I have, as Plato supposes, the idea of man in my mind, and there is an object before me; how do I know, by means of that idea, that it is a man rather than something else? Do you say, by resemblance? But how can a material thing that is external to the mind—is solid—extended, so as to be more or less large, colored, and having a definite and visible form, be like any idea that is in the mind, and can therefore have none of these material or physical properties? The idea cannot be large, of this or that form and color. How then can it represent an object whose characteristics so far as recognition is concerned are these very properties? The ideas, therefore, cannot be patterns, ideals, or paradigms of things, as Plato liked to call them. We may have models of things, such as we have all seen, which, though smaller than the objects themselves, as in the case of the model of the steam-engine, for example; it is a very exact representation of the steam-engine, and gives a very correct idea of it in all respects except its size. But the model has form and color and size, as well as the engine itself. But the ideas in the mind, if there are any in the mind, can have no such properties, and therefore can be no such representatives, models or paradigms of things that are around us in the material world.

Plato, as we have seen, would explain this act of cognition by what he calls the "participation" of the object in the idea, making, in fact, the idea and the property to be one and the same. But we cannot imagine the transference of the property, as whiteness or triangularity for example, like paint from a jar to some object so as to make it white. So if there is the idea of the property in my mind, it is not the same as an element of knowledge to my thoughts as the property of objects which I call by the same name. The hardness of an object cannot be conceived to be the same as the hardness in the mind. If, therefore, we could understand how the idea could be carried out of the mind and put upon the material substance, that would not help us to form any ideas of the object to which it had been transferred. I do not know that an object is white or black, solid or fluid, merely by having these ideas of blackness, solidity, etc., in my mind. Suppose I take something into my hands in the dark; I do not know by the mere contact of my hands what is its color, whether it be white or black. The idea being in my mind is no help to me, even if it is there as a means of knowledge of the object, without actual cognition of the object itself; just as we have seen, it is no help to the actual cognition.

For these and other like reasons Aristotle concludes that Plato's theory of ideas is unsatisfactory and perhaps purely fictitious. Thus he says (*Met.*,

B. I, e. g., § 1,) "the assertion that these forms [ideas] are examples or paradigms, and that all other objects partake of them, is to speak vain [empty, unmeaning] words and to utter mere poetic metaphors." And again (B. XI, v), "the assertion that ideas are models or examples and that other things partake of them, is to speak quite at random and to assert what is equivalent to mere poetic metaphors."

And he makes, in immediate connection with this last quotation, another important criticism. If the idea is the only reality, as Plato had constantly asserted, there could be no possibility of denying the reality of anything of which we have any idea, for in order even to *deny its reality*, the idea of it must be in the mind, and thus the reality is there. "Even though," he says, "we should deny that Socrates does exist, yet the very act would generate Socrates." And in like manner this would make Socrates exist and be eternal, though we were affirming that he never existed.

§ 5. The starting point of Aristotle's theory of knowledge is in fact the same as that of all the theories that have been proposed—the perception of external objects. But he distinctly recognizes the fact that in sense-perception, external objects act on the mind through the organs of sense. These objects, therefore, in his theory, are real and must be recognized as real causes. They cause the sensations in us, they are the starting point of knowledge and true science.

Then he says, "the mind, when it perceives and thinks of that which comes within the mind as the sensations that are produced there by external objects, is *cognisant of itself*, for it becomes an object of perception (to itself) by contact (with those objects) and by the act of intellectual apprehension that which is receptive of impression from what is an object of perception, and is a substance, is mind, and when it is in possession of these impressions (or sensations) it energizes or exists in a state of activity" (*Metaph.*, B. XI, c. vii.)

Now here is what Locke taught nearly two thousand years later as the foundation and corner-stone of his theory of knowledge. Locke denied all innate ideas, such as Plato and the Realists had insisted upon. But he held that our ideas of things are complex—made up of elements—and one part of these elements is derived from the external objects acting upon our minds, in sense-perception, thus giving us the ideas of all the sensible or physical properties of bodies, and then by setting our minds to work we get by reflection or consciousness of their states the other class of elements of ideas—the sum of which makes up our knowledge.

In the theory of Aristotle, therefore, knowledge begins with an act of cognition or sense-perception. In this act there is, and of necessity there must be, *something* before the mind and acting on the organs of sense, the eye, the hand, etc. In this very act we perceive something which he calls *τί*, and by dwelling upon it we perceive what is, the *ὅτι*. And this is true, alike in regard to the *δόξα*, or common impressions of the unreflecting mass of mankind, and the ἐπιστήμη, the scientfic knowledge of the more reflecting, the philospher, the men of science. And with this in his theory, knowledge begins.

In modern use of language we would say that in this act we get an idea—or an idea-image of the object, which Aristotle calls τί, and which is more or less adequate, and correctly represents the object. But we also see, soon if not at first, what the object realy is, the ὅτι, as a table or a chair, a man or a horse, etc.

But how do we know this? The idea of table, chair, horse, man, etc., must have been in the mind, so to speak of it, *before* I could say that this object is a horse, a man, etc., and even before I could think of it or know it to be such.

Now here is just the point at which Aristotle and Plato separate in their theories of knowledge. Plato held, as we have seen in our last Lecture, that on the occasion of the mind being excited into a state of activity by the action of an external object on the sense organs, the idea of the thing was called out of memory into consciousness, by an act of recollection or remembrance, or possibly intution. The idea had been put into the mind by God Himself before we were born into this world. Thus the mind furnishes, from its own resources, the idea of horse, man, table, as the case may be, and then we know and can say that the object is *a* horse, or *a* table, etc.

But in Aristotle's theory, we discriminate at once, and in the act of perception, between the properties of the object we see. We see that some are accidental, and others are essential. The table, for example, might be of a different color or form, or be standing somewhere else, and yet be a table, and the same table that it is now; these accidental properties constitute the *συμβεβηκότα.* We discriminate these properties from those that are essential, and that make the object to be a table rather than something else. These essential properties make up the *ὀυσία,* the essence of the object, as Aristotle calls it, and we group them into an idea, or, as Aristotle would call it, a *νόημα,* or notion, of the thing, which is equally an idea or notion of all the things of that class, that is, of all tables, so that when we see an object having the same *ὀυσία,* or essential properties, we know it to be a table.

§ 6. Here then we reach the central fact, the starting-point, from which the two theories, that of Plato and that of Aristotle, diverge. Plato held and taught, as we have seen and so often said, that the general ideas of horse, man, etc., were innate in the mind, and that the act of perception only called them into consciousness. But in Aristotle's view, the mind *makes* the idea out of the elements of ideas which are thus furnished, and which the mind sees to be, or at least determines at that time to regard, as essential or as making up the *ὀυσία* or *ὅτι,* the what it is of the object.

The word *ὀυσία* has a close relation to the verb *ἐιμί,* to be, though it is not, as is sometimes said, the participle. Its first use in the Greek was to denote one's property or possessions, what he had, what belonged to him. In the time of Plato it had begun to be used in the philosophical sense. But in the works of Aristotle it passed fully into its technical sense, denoting the essential properties of the thing.

In Aristotle's view, then, we see by what he calls *ἄισθσις*, that there is something, the *τί*, the that it is, and then by insight or *νόησις*, we discriminate between the mere accidents and what we regard as essential to it, and these we form into what he calls a *νοητόν* of the object, and then we extend the idea and the use of the word to the class which includes all the objects that have the same properties, however much they may differ in what we regard as their accidenal properties, such as distinguish the objects in the same class, and even one state of an object from another state of the same object.

Thus while the notions, *νοήματα*, were formed in the mind out of the material acquired by sense-perception and insight, there was an *ὀυσία* or notion of the thing itself, which was, like the ideas of Plato, quite independent of our sense-perception and insight, lying beyond it as it were, ready to be seen and studied into. Aristotle defines it in various ways. He sometimes indeed uses *ἔιδος*, one of Plato's nouns for ideas. He also calls it *τὸ τί ἔστι*—or *τὸ τί ἦν ἐ͂ιναι* "that which a thing really is," or ought to be —its ideal, the thing in its perfection.

This theory of Aristotle lays the foundation for his ontology. The external objects must be real and substantial, or they could not produce the sensations in us by which we perceive them. And the mind must be real, or it could not act either in perceiving the objects or in perceiving itself, in the act of perceiving them.

Hence while with Plato the innate ideas were the only substantial realities in the universe, even in fact "the matter" of which the universe is made up, Aristotle regards the objects we observe, the material things around us, as the real objects, and the subject matter of science.

And in like manner the mind within us must be a substantial reality, else it could not perceive the objects, and, therefore, no act of perception could take place. We have then mind and matter, or material things, as subjects of knowledge.

And thus Aristotle argues, as Plato had done, from the nature of motion in the things we see, that there must be One Self-moving Being,—"a Motion that moves Itself," who must also be intelligent, like our own minds, and from the nature of the case He must be omniscient, omnipotent, omnipresent, since all the power that is manifest in the motion of the things we see, must have been derived from Him.

It is easy now to see how Aristotle would have explained the formation of idea-images, if he had thought it worth while to explain their origin any futher than I have already indicated. I do not, however, now remember any pasage in his works in which he has done so. But from his theory, the formation must have been regarded as purely a work of imagination. The elements of the ideas come into the mind through the senses as sense-perception. The mind combines them into a complex idea or idea-image of the object. Thus I have an idea of an orange, but some of the elements of that idea, as color and form, come through the eye, others come by touch, and both taste and smell have each contributed its share. But the mind combined them into an idea of that one particular orange I saw and handled.

I speak of this as the most natural and rational explanation. But it assumes that the idea-image is a real thing *in the mind*, rather than a mere state or mode of the mind itself, which we shall see reason by-and-by to doubt.

But there is another theory, which regards the idea-image as a reality in the mind also, and which seems to have been entertained, namely, that the idea of the thing seen, the idea-image, is rather like the image formed in or on a mirror which receives the rays directly from the object and reflects its image to our eyes.

Thus with the idea-image, or several of them, we separate by abstraction, compare and contrast the objects, and out of the properties we thus find to be common to all objects, we form our general idea, or notion of the class. And the progress in correcting the hasty notion thus formed, constitutes a large share in the progress of Science.

I think we have now seen pretty clearly how, in Aristotle's theory, we get our knowledge of individual objects and how we form our general ideas.

§ 7. But the question is not merely how do we come to have general ideas and to make general or universal assertions; but what is the ground on which they rest? With Plato the two questions were included in the one that he had before his mind. We make the assertion, "this is a man," because we have the general idea of man in our minds and we believe it, because we have the idea and make the assertion. But have we no false or inadequate ideas? To Aristotle this became a grave question, and all the more important and prominent in his mind because he felt himself obliged in two very important and prominent respects to disagree with Plato.

And this our philosopher accomplishes by the use of what has been since regarded as an axiom, and which he asserts to be "the first principle of all axioms." He states it in these words: "It is impossible for the same thing to be and not to be at the same time in the same subject and in reference to the same object" (*Met.*, B. III, c. iii).

If now after the verb to be we put an adjective, we shall make his statement more clear, Thus it is impossible for this piece of paper to be white and not to be white at the same time, in the same sense of the word white, and in reference to the same standard of color or comparison. And in chapter vi, Aristotle gives us a further illustration and application of this rule. Some of the properties of objects he says exist by nature and essentially in the substance, and others are capable of separation from it, such as in the case of man, walking, sitting, being in good health, and these properties, which cannot be separated from the substance, he calls the essential properties and constitute what he calls the essence, *ὀυσία*. All other properties are accidental and constitute *τα συμβεβηκότα*, or the mere "accidents" of its existence, as sitting or walking, sleeping or waking in a man. But under these properties—whether essential or accidental, there is in his estimation a substance *ὕλη*, an underlying substance *ὕλη ὑποκείμηνη*.

Hence in Aristotle's theory every individual object consists of two elements: (1) the *under*lying substance, *ὕλη*, and (2) the *over*lying properties. And these properties are of two classes: (1) essential, *ὀυσία*, and (2) accidents, *συμβεβηκότα*.

In the most general view, the underlying substance had no properties or character at all. It was invisible, without character, *ἄμορφον*, and *ἄοριστον*, or as it was called at a later day, *ἄποιος*; the essence consisted of the properties that gave it its specific character, and without which it could not exist in that character—as iron, wood, stone, water, air, etc., while the accidents were, in this view, the form, temperature, size, place of existence, etc., of this particular or individual object.

Or to take a specific case, this table, for example. The matter, *ὕλη*, is, we will say, wood, the essentia, or *ὀυσία*, all those properties which give it its specific character and makes it a table, instead of being a chair or other object that may be made of wood. Its accidents are those of size, special form, present condition, place of standing, etc.

At a later stage in the progress of science it was found necessary to divide the *ὀυσία* into *essentia* and *differentia*, and the accidents into *separable* and *inseparable*. The latter distinguishes one object from another. The form, the separable accidents distinguish one state of the same object from another state of the same object.

But this underlying matter, the ὕλη, has a nature of its own. And though spoken of as without properties, we must, I think, understand the remark as applying to the visible or cognizable properties, such as make up the "essence" and the "accidents." But in as much as it has a nature of its own, so that there are certain necessary laws which even the Divine Mind cannot overcome.

In one or two places Aristotle seems to consider the primitive matter as but merely condensed space, or place rather, *τόπος*. This, however, is probably but a figurative expression. But even so, he must have regarded it as having extension, and if so, divisibility.

In fact there are always in every primary form of substance certain *metaphysical* properties, so to call them, that are not obvious to either sight or insight, or mere inspection. We reach them only by reasoning. Of this kind is the inertia of all merely material objects.

Hence the method is obvious. All the properties of an object that can be at one time affirmed of it, and at others denied of it, are only accidents, *συμβεβηκότα*, and all others are essential and make up its essential or permanent being, and this class we divide into the *essentia* of the genus, and the *differentia* of its species, as a species cat or dog, in the genus animal.

We have then two classes of cases. Take first the case of an individual object, and let it be a man, John Adams, if you please to call him by that name. I see him, for example, now moving about the room, anon, sitting down or standing still. I know that it is the same man all the while, *for I see him as he passes from one of these states to the other.* Hence these are mere accidents or accidental properties and modes of the man.

So with sickness and health, fatigue and rest, fullness and hunger. Nay, so it is with his age as he passes from infancy to old age and death or the end of his life. These then are accidents. And more than that, they are separable accidents as well, and do not necessarily enter into my notion of this particular man, John Adams.

But again he is *now* sitting in the chair yonder, and no other person or thing is sitting in that chair now. Hence this fact or mode distinguishes him from all other objects; nay, it is inseparable from him. If we take into account the two elements of time and place, no one else and nothing else can be sitting there in that precise place and at this instant passing moment. Hence this is an inseparable accident with regard to him. But as any given posture may be denied of him with reference to any other moment, as well as affirmed in reference to another, the posture is an accident not essential to the man; but with the elements of time and place added, it comes to be a part of his history, a property that must be affirmed and cannot be denied of the same individual, and therefore it is an inseparable accident; and thus it *individualizes* him and distinguishes him from all other individual men and all other objects, man or brute, or a mere lump of inanimate matter.

And so of other properties or modes of being that can be affirmed of any one object and not of another, as in regard to a man, for example—the time and place of his birth, his parentage, and all the peculiar events of his life.

The formation of our ideas is not, however, always limited to the two processes of comparison and contrast, *as between the objects we have really seen.* There is an insight that goes farther than such mere comparison. We often think of a property which, so far as we have seen, has been an invariable accompaniment of all the objects in that class, which, however, we come to think to be necessary, and we regard its absence or abstraction as possibly something that would be an improvement to all the objects of that class. And so too in the direction of improvement. It is in fact regarded as a characteristic of what we call ideals, that they are better than anything that we have seen or can produce, are something in fact that is always before us, floating, perhaps, and receding as we approach them, so that we can never expect to reach them, never look forward to a time when there is not something to aim and strive for, something in the way of faith and hope to stimulate our aspirations and efforts.

Hence then we have two classes, or sub-classes rather, of the properties of objects, the one called separable accidents, which make up the transient modes in which any object may exist, and in some one of which it must exist; and the other, those properties which belong to that individual exclusively and are inseparable from him, so that they do not belong to and cannot be affirmed of any other object of thought or knowledge, and therefore distinguish that individual from all others; and they are called inseparable accidents.

But after all these accidents do not constitute the "ideas" of Plato or the "notions" of Aristotle. They do not form a part of what either of them would consider science or true knowledge. And it is for this reason that they are called accidents or accidental properties. In the science of zoology, for example, the professor has no occasion to tell, in treating of foxes, the history of the peculiarities of any one particular fox. And if he speaks of them at all, it is a mere amusing anecdote, or an illustration; it is no part of the science of foxes, or of Natural History. But he should tell us what is common to all foxes, the anatomy of their bodies, the structure of their organs, the size and convolutions of their brain, their instincts and habits of life, and whatever else there may be that is common to and characteristic of the class of objects (animals) which we call foxes.

These general ideas, that is, ideas of objects or classes, which denote the class and not at all any one individual, are not only necessary to science and a scientific comprehension of all subjects, but science in the proper sense of the term, does not deal with the individual objects that make up the species or their accidents; it deals only with the essential properties of objects that make these classes, species or genera. When we speak of individuals it becomes biography, or amusing anecdote, and then we talk of persons, tell who they were, when they lived, what they said, and what they did. But we do not regard it as science.

We have thus far considered Aristotle's theory of the first steps or stages towards knowledge. We have seen his theory of notions as contrasted with Plato's theory of ideas.

We now proceed to the second great part of his theory of knowledge.

It is a starting-point in Aristotle's theory of knowledge, that we can affirm of objects nothing but what we have seen in them, or in other words, we can predicate of them no property, whether as accident or essentia or differentia, which has not been given us—furnished to the mind by the senses. Hence in his theory, cognition of objects is the basis and origin and source of all our knowledge of things. This for external objects. And then for the mind itself, we have consciousness, *συνείδησις*, by which the mind perceives its own acts and states, as said above. Thus we have sense-perception, *ἄισθησις*, for external objects, and *συνείδησις*, or consciousness, for the mind or self. And as we see the objects by their properties, as color, form, etc., so we see the mind by its acts and states, and thus get our ideas of perception, memory, reason, imagination, volition, etc., and thus come to have, or may come to have, as good a knowledge of the mind as we have or can have of any external object or material thing whatever.

§ 8. Now the rule of Aristotle comes to our aid. Whatever we can affirm at one time or in one relation of an object, and deny at another time or in another relation of the same object, is a *separable accident* with regard to that object. And then one step farther. Whatever of these properties or modes or acts we can affirm of any one object and never deny of that object or individual, and can affirm of no other individual or object, is an *inseparable accident* of that object. But they are, as Aristotle and Plato would both of them hold, no part of "science"; they enter into biography, but they constitute no part of what is called science.

But whatever may be affirmed constantly and always of two or more individual objects, may be made a *differentia* or an *essentia* of the two or more as a class of objects. And it and all the other properties that may be thus affirmed of all the objects in the class are its essence, or *ὀυσία*, of the class.

There is, however, no one property that can always and in all relations be called by either one of these technical terms, *differentia* or *essentia*. We first see objects one by one. And the moment we see two that are alike in any respect, and notice the resemblance, we make that likeness an *essentia*, and the two constitute what is called a *genus*. And of course the genus includes all objects that have that property, and is therefore *like* the ones we have seen, in that respect. But when the individuals which we have seen in that class, that is, having this property, become numerous, we see that a part of them have some property or characteristic common to them, which, however, is not found in the rest, and we divide the class accordingly. Thus some men are honest, and some are not so. Here man is the genus, and we make for the occasion this property, honesty, what is technically called a *differentia*. But suppose again we find the objects in this species require to be divided on account of some difference among them into two or more classes; then what was the *differentia* becomes an *essentia* now, and we make this newly-discovered property a *differentia* for the occasion. Thus, if we find among honest men that some are black and others are white, we make honesty the *essentia* of our genus, and color black or white, the *differentia*, or rather the two *differentias*—the one for one species or class, the white honest men, and the other for the black honest men.

Thus any property, whether included by Aristotle in his "essence" or among his "accidents" (*ὀυσία* or *σύμβεβηκότα*), may be made an *essentia* or a *differentia* for the occasion.

But in Aristotle's classification we have as essential properties of things such as cannot be separated from them. For *a class* these properties can be only those that are common to all the objects in the class. But for any individual object they include the inseparable accidents as well.

While, therefore, his accident coincides with what we thus call by that name, his essence does not coincide with what we call the *essentia*, and scarcely bears any constant relation to it.

In the first place, it may mean all the properties that belong of *necessity* to the class, as in mathematics, all the properties of triangles that we can prove to be properties of them are essential. But in the second place, in all existing objects, all the objects that we see, there are certain properties that are common to each of the objects in the group or class, and never absent except in cases of acknowledged monstrosities, which we call in Aristotle's use of terms the essential properties of the class, and which we denote by the name we give the class. Then in the third place, Aristotle regards, as we have said, the inseparable accidents of any individual person or object as of the essence of that individual, its *ὀυσία*.

It is often a little difficult at first, and for one that is not accustomed to such things, to fix clearly and distinctly in his mind the exact meaning of each of these technical terms. But they are a part of science and cannot be altogether avoided. Hence, whenever there is one of these three parts or elements of any existing thing, there must be the other two. There can be no substance without essence and accidents, and no essence, *ὀυσία*, without both an underlying substance and a surrounding of accidents. And in like manner any accidental property implies both a substance and a group of essential properties, which make the object to be in one or another of the species of the objects to which we give a general name.

But the accidents never enter into science and make no part of our *scientific* knowledge, however essential in a *practical* point of view.

And as we never perceive the underlying matter, and as the matter must have its essence, it is not strange that the word *ὀυσία* came to be used to denote the substantial thing itself—nay, in many cases it came to denote even the substance of the thing. Of course whenever any essence is present some substance must be there also. Hence in Latin the word *ὀυσία*, or essence, came to be translated by *substantia*, and the two in the common speech of mankind were confounded with one another, and the terms themselves were often used indiscriminately.

It is not altogether easy to understand and realize what Aristotle meant by soul, *ψυχή*. In his work on the soul, *περὶ τῆς ψυχῆς*, he regards everything that lives, even plants and the lowest animals, as having soul. In his view soul is but an abstract term, and denotes the phenomena of life, growth, reproduction, decay, etc., as well as digestion and such like; very much as gravity is to the falling bodies, or electricity to the flash and roar of thunder, or the clicking of the telegraph register. It is the unseen force that becomes manifest in these phenomena, and is more nearly like the so-called " principle of life " than anything else that we have a name for in our language.

Aristotle made a distinction between two or perhaps three modes or states of existence, or being, which, although not very directly in the line of my object in these Lectures, is, nevertheless, of sufficient importance, in my estimation, to justify me in stepping aside for a moment to mention it. The words used by him to express his view of the three stages in the existence of anything are, *δύναμις*, *ἐνέργεια* and *ἐντελέχια*, the first denoting " in power " or " possibility," the next " in fact " and the last in its perfected state.

In this view everything must be considered as having existed in power, potency or possibility, before it existed in fact and reality. And most things may and ought to be considered in reference to this potency, or in plain English, what it is possible for them to be or become, as well as in reference to what they are, if we would have a full and complete scientific knowledge of them.

Hence the words "potential" and "potency" have come to have a use in our modern discussions of science that are somewhat technical, and grew out of this part of Aristotle's theory of knowledge. Thus Tyndall says, in speaking of primeval matter: " I cross the boundary of experimental wisdom and discern in matter . . . . the promise and *potency* of all terrestial life (*Fragments*, p. 534). In plain English, and without any metaphysics, this means that he saw (in imagination? or insight?) from a consideration of the nature of matter, even in that state, that it was possible for all living things that now exist or are hereafter to come into existence, to be formed of that matter; or better still, it was possible for that matter to pass (to be formed?) into the forms of animal life, such as we now have "in fact" —*ἐν ἐντελέχια*, as Aristotle would call it.

Of course this may have been a matter of imagination and thus have no scientific value, or a matter of insight; and if so then he should have told us how this inorganic matter could take on the form of organized life and become living plants and animals *of itself* and without an act of the Creator.

But it is time to pass now from this one great branch of Aristotle's theory of knowledge to the other and second great department of it. The first part consists, as we have seen, of observation, or sense-perception, insight and classification.

§ 9. But observation and induction, leading to and implying generalization, are not the only means of knowledge that are recognized and described by Aristotle. These are Deduction and Demonstration, or *ἀπογωγή*, and *ἀποδείξις* as well. The former means literally the taking of one fact or truth from another, and the latter means the showing of one truth by means of another; the former is what Aristotle calls Deduction, and the latter is what he calls Demonstration.

There is a disposition in these modern days to limit demonstration to that form of *a priori* reasoning, to which we confine ourselves in the pure mathematics, although the word is constantly used in a different sense in scientific discussions. We speak of demonstrating a doctrine by a fact or an experiment. And in the study of anatomy the word demonstration has still a more limited signification.

But deduction is general, and even the cases of demonstration may always be stated in the form of deduction. By deduction we arrive at the knowledge of much of the detail of all sciences, and at all the applications of these principles of any science to the practical purposes of life. Thus I have a piece of iron before me. Will this piece melt and become fluid? Will it unite with oxygen or carbon? I do not know from observation, for I have never seen the thing tried on this *particular* piece of that metal.

But I have learned by induction and generalization, based on, and proceeding from, observation and insight, that iron will melt at a white heat. I have not only seen that it will do so in all the cases that I have tried, but I have come somehow or other to the conclusion that this property of melting at that temperature is essential to iron, and is to some extent characteristic of it, so that if this object I have before me be a piece of iron, and will not melt at that temperature, one of two things is certain—either it is not iron at all, or it is an abnormal and exceptional case.

Hence Aristotle's fundamental axiom, known as his *dictum de omni et nullo*, "Whatever may be affirmed of a class of objects is essential to the class, and may be affirmed accordingly of any and every individual in that class" (*Categories*, iii).

Aristotle's statement is not quite so clear as the above; but it is the same in import; "Whatever is predicated of another as a subject, then whatever things may be said of that predicate may be said of the subject also;" or, to put it in the form of a syllogism:

All pieces of iron melt at a white heat;
This is a piece of iron;
Therefore it will melt at white heat.

It will be seen from this example that much of our knowledge of detail as well as all precepts for the practical application of our knowledge, must be attained in this way, that is, by inference from general principles. In short, deduction is as essential to knowledge of detail and the completion of science as induction itself.

As is well known, Aristotle wrote a treatise on Logic, or rather several treatises, which, taken together, make up what is called his Logic. With him, as he treats the subject, it is both a science and an art. He treats the general and fundamental principles, and discusses also the nature and use of the terms or words and phrases by which our meaning may be expressed.

The principle—the *dictum de omni et nullo* just stated—really affirms only the principle of what is called the First Figure. But Aristotle knew of two others, and described them. The Second is, as resulting from the nature of classification, that when any property may be affirmed of any object and denied of another, they are not the same object under different names, nor yet do they belong to the same class; thus making the predicate that is affirmed of one and denied of the other, as a *differentia*, so that they do not belong to the same species. Thus,

John Adams was an American;

Napoleon Bonaparte was not an American;

Therefore John Adams could not have been Napoleon Bonaparte under another name.

Scientific men use this form freely and frequently. When, for example, a new species of animal is found, or the fossil remains of any extinct animal, quite as much is inferred negatively from what is actually seen, as to what it was not, as can be affirmed, as a matter of positive science or knowledge of what it really was. What is seen may indicate that it did not live in the water; and thus we have the whole group of properties that may be derived from this one; as that it had not the second stomach of the ruminants. And the absence of any one or all of its peculiarities of constitution throws light in one direction or the other upon the animal whose frame we have before us. But there is still a third principle of deduction which depends upon another law of the correlation of species and leads to the other class of useful inference. It is this. Whenever any property may be affimed of two different classes, that property cannot be a *differentia* of either class, but must be common to some at least of the individuals in the two classes named, thus:

All remedies are useful in their place;

But some remedies cause pain in their application;

Therefore some things that are useful cause pain in their application, and conversely, some things that cause pain are useful in the end.

There is indeed a fourth mood. But Aristotle either knew not of it, or if he did, he did not consider it worth discussing in his treatises. And in fact it rests on the *dictum de omni et nullo*, and is but the same rule taken backwards, so to call it.

And since the time of Aristotle there has been recognized a form of syllogism that does not in fact come under his *dictum* at all. It is called the comparative syllogism, and has necessarily *four* terms, while his can have only three, thus:

A : B : C : D;

A is one-half of B;

Therefore C is one-half of D.

This form of reasoning is used largely in mathematics. But it is extensively used elsewhere. In fact its major premise is the basis of all metaphors, thus:

Washington is to his country as a father to his family;

Washington the father of his country, or simply, "the father of his country."

§ 10. It is manifest from this review that we have within the domain of knowledge three kinds or degrees of certainty.

The first and highest is obtained by demonstration in the narrower and more restricted sense of the word. It begins with self-evident axioms, and proceeds with definitions only, and by means of steps, any one of which is either a self-evident axiom or the result of a demonstration in this narrower sense of the word. Aristotle everywhere assumes the existence and character of this method. But he no where, so far as I now remember, professedly or directly describes it. We have the best illustrations of this method in the pure mathematics. There we begin with the announcement of a few axioms. We then define the point, the line, the triangle, the rectangle, the circle, etc., and then proceed to develop the necessary truths that are implied in each of these figures, or definitions rather. But in the whole process we assume nothing that depends upon observation, nothing but what is implied in the nature of things, so that there can be no error, no exception, and no generalization that is too broad for the premises.

In this case we deal with only what Aristotle calls the essence of things in the strictest sense (see above). The definition of the terms gives part of the essence, that is obvious to all. The axioms state only what is essential—obviously so to the subject of the axioms. And the demonstration can neither add nor detract anything; it only develops, and can do nothing more nor less, other properties that are of the essence of the figure or number we are dealing with. It can bring out to view all the hidden essence of the subject that we are reasoning about.

The next kind or degree of certainty—and in fact it is very different both kind and in degree—is that which is based on observation, generalization and deduction from more general truths. The sources of uncertainty here is the possibility of false perception and the still greater possibility of seeing things through false and distorting mediums, and hasty generalization.

There have been along in the history of philosophy several evolutions of a form of idealism which denied the reality of external objects, and thus aimed to throw distrust on observation altogether. But the recognized and undeniable distinction between true and false perception, makes the objects of true perception an undeniable reality, and the reality or act of perceiving implies the reality of the thing perceived —to perceive nothing is not to perceive at all. Hence in all acts of true perception, the reality of the object perceived is implied and proved by the most rigorous demonstration. This is the reason for making this, which most persons regard as the source of the most absolute certainty, the second grade and inferior to the kind of demonstration I have indicated. Cases of false perception do undoubtedly occur, in which we have nothing but a demonstration of the impossibility of what we thought we saw to convince us of its unreality. Often indeed there is a doubt in the mind of the observer himself, whether his faculties are in this unreal condition and may be trusted. But this is not always the case.

But the world is full of hasty generalizations. And one of the most important as well as one of the most difficult things in the progress of science, has been the correction of these hasty generalizations that men have made in the ages that are past. The time was not long ago when all animals that lived wholly in the waters were called fish; all that fly were birds. But we have whole groups or classes of shell-fish that are not fish at all, and besides bats that fly in the air we have flying squirrels, and I believe also flying fish in some countries.

The other kind or degree of certainty is that which attends deduction in the ordinary sense of the word. And yet the fault or danger does not depend on the process, or rather the principles of the process. These are as certain as the axioms of mathematics. And in fact, as logic is ordinarily taught, there is but the one principle or axiom already stated: the *dictum de omni et nullo*, that is, the principle of subordination and comprehension. For all the recognized syllogisms can be reduced to the First Figure and thus placed *obviously* under this *dictum*. And all the other recognized forms, as conditional, hypothetical, disjunctive, are but various ways of stating the argument.

In mere deduction, however, there is, as I have said, the possibility of error, arising from the possibility of what are called exceptions. In the strictest sense of the word, the essence of a thing consists of those properties of objects without which they could not exist, or be in the class to which they are referred. But besides these properties, all or nearly all the objects in any class have other properties, which are common but not essential. Thus, most men speak, but we do not hesitate to call one who cannot speak a man, or one of the human species, though he were dumb and incapable of speech. But if there were or could be an animal in *the form of a dog* for example, that could speak and use language as men now do, we should not call him a man on that account, but rather a speaking dog, and a speechful dog. Hence speech, though a property common to man, is not in the strictest sense of the word the *ὀυσία* or essence of man.

All real objects, that is, all objects that naturally exist, have such properties. And hence the uncertainty of mere deduction as contrasted with demonstration, which is based upon the essential properties of things, and upon them only.

But the sources and danger of error of this kind are twofold. First; as all reasoning must be stated in language, there is always the possibility and the danger of some fallacy in diction. Aristotle saw this and devoted a large space of his logical treatises to its consideration. Thus, in the well-known illustration:

Light comes from the sun;
Feathers are light;
Therefore feathers come from the sun,

We have a clear case of ambiguity in the use of the word light.

But in the second place we reason for the most part from general principles, which we call major premises, that have been obtained by induction from observed facts. Hence, aside from all the liabilities to err in the process of observation and generalization, which make up the induction, or, to speak more accurately, the observation and the induction that make up the generalization, there is always the possibility of exceptions, monstrosities and sports, which render it possible that in every particular case our inference may not prove true on actual observation and experience of it. This source of liability of error, however, does not depend on the nature of the process of deduction, but rather on the matter to which it applies. It is not found in mathematics at all, for although all the reasoning in any mathematical demonstration can be reduced to one or the other of the two forms of syllogism I have named, the categorical and the comparative, yet in mathematics we reason from definitions that give us only the nature of the things — the most obvious *differentia*—instead of mere generalized ideas that have been obtained from observation and of particular examples.

§ 11. But we must in conclusion notice Aristotle's two famous groups of categories, or rather his classifications and indications of the extent and scope of human knowledge.

The first of these lists that I shall notice is the most comprehensive, and includes all that can be called knowledge, or all that one can be said to know, or even wish to know, in the most comprehensive use of the term. It consists of ten categories or classes of predicates that can possibly be affirmed of anything, including—as science in the stricter sense does not—the modes that are made by the most variable of the separable accidents.

The first named category is the *ὀυσία* or essence of the thing we indicate by its name. Then follows, secondly, the quantity, as how many, or how much. The quality, or any of the adjective predicates that may be affirmed of it besides those embraced in the first category, or its nature as indicated by its name. Fourthly, its relation to other things, as a father to a son, cause and effect, etc. Fifthly, the place where it is, or has occurred; and, sixthly, the time when it was, or was in the condition which we have in mind. Seventhly, its position, as standing, or walking; and, eighthly, what it has, holds or possesses. Then, ninthly, its state of action, what it is doing, or whether it is doing nothing; and so at last and finally, tenthly, its passion, or what if anything it is suffering or is being done to it.

There has been much discussion and much difference of opinion as to what Aristotle meant precisely by his first-named category, *ὀυσία.* But it seems to me that after the two thousand years that have elapsed since he lived, one need have no difficulty in stating clearly what perhaps he did not see quite clearly. He, however, recognizes the fact that he uses the word in two senses (*Cat.*, c. iii). In one sense it denotes the individual, including the inseparable accidents, and in the other it denotes only the class by the properties that are common to all the objects in the class. In the first sense, as Aristotle takes pains to say, it is never a predicate in the proper sense of the word, while in the second sense, it is one of the most commonly used of all predicates.

I have said that Aristotle regards Plato's doctrine of eternal ideas in the mind, and substitutes in a measure what we translate notions, *νοήματα*, as formed by the mind itself. But his *ὀυσία*, or nature of things, comes to be nearly the same, and for every purpose just the same, as the ideas of Plato, as we shall see more fully in the next Lecture.

They include all the possible predicates, and, as Aristotle says, no one of them considered by itself either affirms or denies anything of any subject. But when connected by the copula "is" or "are," and so formed into a preposition, as "paper *is* white," we have an affirmation, and the first step after simple cognition or apprehension of objects towards knowledge or science, which is but systematized knowledge. And moreover these propositions must be formed before we can have any process of deduction or demonstration. They must be formed in fact before we can say anything, or rather they are necessarily formed in the act of saying anything of any subject whatever (*Cat.*, c. iv).

Then, as true predicates, all these elements are of three kinds, so that in a simple sentence a predicate may be (1) a common name denoting the genus, *γένος*, as John is a man; and (2) some differential property which makes the class, as John is human, that is, a human being—a man; or lastly, some accidental property, *συμβεβηκόν*, as John is sick.

Aristotle does not in this place recognize or speak of the identical propositions such as have as subject and predicate, two nouns which are only names for the same thing, as "common salt is the chloride of sodium." And his distinction between his second and third forms it seems to be hardly worth the while to retain.

So then we have but three kinds of affirmative categorical propositions; those (1) in which the predicate is but the synonym of the subject; (2) those in which the predicate is a common name, denoting the genus or kind of the subject; and (3) an adjective denoting a property which is ascribed to the subject, and this whether essential or accidental.

§ 12. But it is time to pass to the other subdivision of knowledge which has reference chiefly to scientific comprehension of things, which is systematized knowledge. In this classification all knowledge is referred to four heads or first principles, which he calls both *ἀιτίαι*, causes, and *ἀρχάι*, or first principles. He repeats this classification and enumeration several times, as in *Met.*, III, B. IV, c. ii; B. XI, c. iv; and *Phys.*, II, 3d, 194 and 23. They are sometimes spoken of as the (1) efficient cause, (2) the material cause, (3) the formal cause, and (4) the final cause.

Although the above is the order in which Aristotle usually mentions them, and the order also in which they occur both in time and in logical sequence, it is better, as I think, for our present purpose, to take them up in an order that is somewhat different from that given by Aristotle.

The material cause is that of which anything is made, as wood or stone, and the particular kinds of material, as oak, marble, granite, etc. This is a part of our knowledge of any object, and it gives knowledge also within certain limits of the things we are talking about. Of anything that is made of oak, many things may be said that could not be said of a thing although in other respects the same, but yet is made of iron or marble. It thus includes things that are inherent in and inseparable from the nature of the material itself.

The formal cause is the specific character, the *ὀυσία* of Aristotle's phraseology and the "idea" of Plato's. And Aristotle borrows, or rather follows, the doctrine of his master far enough to regard and speak of these ideas as causes. It is the idea of table put upon the substance wood that makes the wood to be a table rather than something else. It means thus in our language the specific character, what kind of a thing it is; to what species does it belong, as, if made of wood (material cause), is it table, chair, or what. And if we will consider the matter as descending to individuals, it includes all of its inseparable accidents, which are a part of the essence of the individual. All those properties and modes in fact that make him to be what he is as distinct from all other men and other objects of thought. But it can hardly be said to descend so as to include the separable accidents.

We come now to speak of efficient causes. Aristotle regarded everything in the universe but One as an effect produced in time, and so far at least as its present form is concerned, dependent in its existence. He speaks of essence without substance as that which makes things to be what they are. But of substance he recognizes three kinds: (1) that which is visible to the eyes; (2) that which is invisible to the eyes, but is seen by the reason or insight; and (3) that which exists in no cognizable form as yet, but only in potentiality, and may be brought into existence, as well as into all the changes in its form and mode of existence, imply an efficient cause. Of these, there is but One First Cause. There are many human causes, as every human being is a cause also in this sense.

And then each substantial thing is a real cause, though a cause in a secondary sense, as acting upon other things and producing effects in them only as it is acted upon and actuated by some thing or person also, who is a cause in the first or primary sense.

§ 13. With Plato, as we have seen, the starting-point of his theology was the thought of God as the Mind, the source and repository of ideas, and then of ideas themselves as guiding intelligence in its activity by love and a desire for the good and the happiness of all things. But Aristotle, starting as he did, with the objects and phenomena of the material universe around us, was led to think of law and motion, and to consider God as the First Cause of motion and of all the changing phenomena of nature. Thus motion was with him the central thought, the starting point, as mind had been with Plato.

Aristotle, as we have seen (*Met.*, B. XI, c. vii), defines mind to be that within us which as substance receives impressions from things around us, such as are capable of being perceived, and then when it has received these impressions (sensations) it subsists in a state of activity (active thought). He then passes from this definition to the idea of God, " Wherefore this [state and kind of activity] seems to belong to and characterize the First Mover more conspicuously than the mind of man, so that in man it seems to be rather a divine prerogative which man possesses." " The principle of life is surely inherent in God. For the reality of active exertion constitutes life, and eternal life constitutes the essence of God."

In this classification he thinks that there are four substances: Fire, which is essentially active but not always or incessantly so; and the other three, air, fire and water are often at rest. But of course, as he argues, there must be something that is spontaneously, that is necessarily active, and thus he argues must necessarily be eternal, indestructible, incapable of passion, or being moved or acted upon by others, and not only always active but the cause of all action, motion or change in the others. It (He) is not only potential energy, that is capable of acting, but is actual energy, or energy in action.

Thus while Plato, from his method and starting-point, reaches something like the universal intelligence or reason of our modern idealists, Aristotle, with his starting-point and method, reaches something like the force, which is the ultimate fact with our agnostics.

But both these two grand old philosophers hold to the personality and moral attributes of God.

Then finally there is a final cause for everything that exists except the One, that is, a reason why it exists, and a purpose or design in its existence. This results from Aristotle's view of the First Cause, as an intelligent Being, acting spontaneously and from purpose or design ; Plato had argued the same view in his later work, the *Laws* (B. X, c. ii).

In his view of a final cause we never understand anything fully until we know what it was created (if created by God) or produced (if by man) for ; that is, what was the design or aim in producing it. But in modern times men of a sceptical turn of mind have come to doubt or be cautious about what are called final causes in the domain of nature, and Aristotle's fourth class comes to be the effects or consequences which anything in existence may produce.

Thus I think we shall see that Aristotle's enumeration of the categories, or his classification of knowledge, is very complete and that he had a wide and comprehensive grasp of the whole subject, and did much for the world of thoughtful men, which the world has had no occasion to do again. He stands out as one of the greatest lights, and perhaps the greatest light, on the whole, of all antiquity—a philosopher who was so far before his age that the more we study his works in these modern times, the more do we find in him, and the more do we become aware that he had anticipated to a large extent our wisest and best thoughts.

LECTURE III.

DESCARTES AND LOCKE.

§ 1. Plato made such an impression that his views were always prominent in the minds of men who regarded themselves as students of philosophy. In this line we have several stages of evolution until we come to the so-called Neo-Platonists of Alexandria. And in fact the principles of his philosophy had made such an impression on the minds of many of the early converts to Christianity, that it enters somewhat largely into the theological speculations and the accepted teachings of the early theologians, if not those of the Church itself.

But in the case of Aristotle it was quite otherwise. He can scarcely be said to have formed any school, or to have had disciples at all. It was not until some two hundred and fifty years after his death that the first complete collection of his works was made. Nor did they receive much attention for a long time after that date. In fact Plato's theory of ideas was, strange as it may now seem, easily understood after a fashion, and accepted by a large class of men of certain mental characteristics. And it was thought to be particularly favorable to the reception and the right interpretation of Christianity. But Aristotle's philosophy was far more difficult of comprehension and appreciation. Plato's theory gave an impulse and play to imagination and the unlimited exercise of fancy. Aristotle's theory called for careful and accurate thought, nice discrimination and patient investigation. In fact it laid the foundation and actually called for the system which we often regard as not only of late discovery, but as the peculiarity of modern times—the method of induction and the patient investigation of facts.

Another influence deserves a passing mention. The philosophy of Plato was far more congenial to certain forms of Oriental speculation, which were at that time making their way westward. Philo, the Jew, applied it to the interpretation of the Old Testament teachings. And at a later date it gave rise and form to what was called Gnosticism.

Aristotle's logic was revived, however, after a while. Porphyry wrote an introduction to it (about 275 A. D.) and explained it in order to bring its methods into general use. It was also adopted by Mahometans in their schools. But the application of one part of Aristotle's logic—his method of deduction, omitting wholly the part of observation and induction as a means of reaching general maxims or first principles—to the first principles or innate "ideas" of Plato and the "essences" of Aristotle, gave rise to what is known as the scholastic system of the Middle Ages.

§ 2. The great controversy of the Middle Ages, so far as our subject is concerned, is known as the controversy between the REALISTS and the NOMINALISTS—the Realists affirming Plato's theory of ideas or Aristotle's doctrine of "essences," and those who are commonly called Nominalists dissenting from it.

We know but little of the Nominalists except through the representations—or possibly we should say the misrepresentations—of their adversaries, the Realists. With the Realists all knowledge consisted in or was derived from the innate ideas or essences, although now, under the influence of Christianity, the doctrine of a pre-existence of the soul and the acquisition of its ideas in this earlier stage of its existence, was no longer held. But the philosophers of the age seemed to think that there was and could be only the two sources of ideas—in view of one of which they were called innate, and the other, which was held by the Nominalists, was supposed to derive them all from sensation. It was held, therefore, that unless we have innate ideas, that is, ideas that are not obtained by sensation, we can have no ideas of anything but material objects; and all other words than those used to denote some material thing—something that we can see and handle—must be mere names, *flatus vocis—vox prœterea nihil*, and the advocates of that theory of knowledge could be only atheists and materialists.

All objects that could be thus seen and cognized were considered as denoted by *concrete* terms. But all *invisible* objects were denoted by terms, which, in the philosophy of that day, were regarded as abstract. Thus the mind or soul of man, as well as truth and justice, virtue, and primarily all general ideas, nay, even God Himself was denoted by what were regarded as abstract terms.

In modern times, however, as I shall have occasion to show hereafter, we find it necessary to make a very different classification of our terms.

The controversy turned on what were called *generalia* or *universalia*, or as we call them, general terms. It was held by the Realists that there must be general ideas before we could perceive any individual object, or give it a name, or know what it really is.

There is an object before my eyes. What is it? I see it, its outline, its form, color, etc.; but what is it? I say, "It is a man." "Ah, yes," say the Realists, "how could you call it a man if the idea, the general idea, of man were not already in your mind?" Well, I suppose I could not. But then the inquiry arises, how came that general idea in my mind? You never saw *man*. You have seen *men* individually, one at a time, and one by one. But all these are concrete objects. The word man, on the other hand, is general, and as such cannot denote any object that can anywhere be seen; that is, we can see no one anywhere that has not the accidental properties that make him to be some one individual man, no where one with merely the essential properties that make up our ideas of man in general.

How then do I call the object that is before me *a* man? If you ask for the word man, I answer, I learned that from my ancestors, who speak English. But do you inquire for the idea? I answer substantially, as Aristotle had done, and as all modern philosophy requires us to do (Lecture II).

In the first place, I got all of my first ideas of this kind—that is, general ideas—by analysis, insight and generalization. I saw at first one or more objects that people called men. I saw that in some respects they were all alike, and in some respects no two of them were exactly alike. Out of these points of resemblance or similarity I formed my idea of man in general. And thus with both the word and the idea, I can and do call all objects of sight, or of thought, even, that possess those properties that are common to them all, men, and constitute my general idea of man.

And thus it is with all the general names that I learned from my ancestors and teachers, and also with all the general ideas that I have formed of objects that I have really seen. But then, in the second place, I have general ideas of things that I have not seen. These I get from dictionaries and such other means as describe for me objects that I have not seen, some of which perhaps I never can see.

But these ideas, that is, ideas of this class, are only general ideas. Besides the ideas which in this philosophy were considered concrete ideas, that is, ideas of visible and tangible individual objects, there were two other classes that were not accounted for in this way.

The one class are what we now call *abstract* ideas in the narrower and more strict sense of the term. These are formed, as we hold in modern times, by what we call the process of abstraction. In this process we are supposed to withdraw the mind from thinking of the thing itself, and fix our thought on some one of its modes or properties, and then by an act of fancy or imagination, we erect it into a reality that can be thought of and spoken of by itself. As, for example, I see this paper; but I withdraw my thoughts from the paper and think of its color, its form, etc., and speak of its whiteness, its rectangularity, its flexibility, etc., as though they were as real and as substantial, too, as the paper itself.

This act of the mind has played an important part in the past, and has really created a world of fictions that philosophers have supposed they must recognize and account for as part of the facts of nature—the universe of realities.

The other class are really concrete terms, though denoting objects that are not visible to the eyes, as the soul of man, and the Being, God himself. But of these ideas more will be said by-and-by.

The Realists insisted, as in favor of their view, that "the universal" must exist, or have existed, *before* "the particular" or the individual. Even on the explanation which we have given, this claim of theirs would seem to be implied. And in view of this fact we have three theories characterized as (1) *universalia* or *generalia ante rem*, which was the truly

Platonic theory; and (2) *universalia post rem*, which is virtually the one I have just given in explanation of the fact of our calling an object by its general name; and (3) *universalia in re*, which coincides with the second, and in fact the second and third are parts of our theory. We see objects, the essential properties of which constitute the general ideas, and these properties are *in* them "*in re*," and we form the idea after seeing them, and thus the ideas are *post rem*.

This view excludes, of course, Plato's theory of ideas in the mind before birth. But it leaves the question of innate ideas in the more modern sense, that is, ideas in the mind arising into consciousness on the perception of any object.

It provided for Aristotle's "notions" as formed by the mind, but it hardly accounts for his "essence" which seems to have been virtually what Plato's ideas were, something which, if not in the human mind, were yet in the Divine Mind and to be approached and approximated to by the human mind.

But to return for a moment to the point that the universal must have existed before the individual or the particular.

We ask, in reference to whom must this have been the case? And in what sense did they exist? The question is important. If we refer to the Creator, then in accordance with Plato's argument, spoken of in our first Lecture, the idea must have been in His mind before any act of creation could have taken place; that is, He must have had an idea of what He was going to create. And in the case of man, as in Plato's example, the idea of a bed, a table, must have been in his mind also.

Hence in regard to the mode, way or place of existence, the *ideas* exist, if in fact they are things at all, in the mind and only in the mind. But the *things* exist out of the mind and in nature. Hence the word existence means very differently when used in one case from what it does when used in the other. Even in regard to God and creation, the ideas of things existed in His mind, while the objects exist out of the mind, individually and one by one in nature, and constitute the universe of things, in heaven and on earth—the material things that are visible in the world, and the souls of men and angels which are invisible.

But if the question be in relation to man, we have a somewhat different answer to give.

Man begins to get his ideas after the creation of the objects, and when they are before him and subject to his observation. And with each act of observation he gets or forms an idea-image of the object he sees, and then by processes already explained, he forms (1) his general ideas of classes of objects, and (2) his abstract ideas of the mere properties, modes and forms of existence, which cannot be seen by themselves. But as I have already said, we objectify these mere abstractions—modes and properties of things—and speak of them to a large extent as if they were things themselves, denoted in fact by concrete terms.

This delusion—for I can consider it as nothing else, unless one prefers to call it an illusion—began to prevail at a very early stage in the Aryan mind; and it clings to it with a very remarkable tenacity. In fact but few persons, and nobody, perhaps, ever had the thought occur to them until recently. And even now it is not uncommon to hear one argue that the properties must have existed before the things, as whiteness before anything that is white. But whiteness is not a substance like a coat of paint, that can be put on or kept off of its object.

I have spoken of the fact (Lecture I) that both Plato's theory of ideas and his use of language led very naturally to the speaking of properties as things themselves.

§ 3. What is known as the Scholastic Philosophy arose from the application of Aristotle's logic to Plato's theory of ideas, and his own theory of essences as "first principles," which came to be recognized as the *phhilosopia prima*, or set of first princi ples which were regarded as prerequisite to all other mental operations. Then Aristotle's logic, as developed and explained by Porphyry and a few others, when applied to those principles gave us, or was supposed to give us, all we could know of Natural Science; and when applied to texts of Scripture and the accepted dogmas of the Fathers, it gave us, or would give us, all that we have or can have of Theology.

The method thus pursued was called demonstration. But, as I have said in the last Lecture, demonstration as a method is of two kinds, or rather is applicable to entirely different classes of subjects. The one is such as we have in mathematics, in which we demonstrate from the nature of a *thing*, as a triangle, a circle, truths concerning it. The other kind is that in which we demonstrate, not from the nature of the thing, but from some accidental property of a thing, as its color, its weight, etc., denoted by an abstract term, a truth or law concerning the thing itself and all things belonging to the class.

In regard to the theology of the Middle Ages as developed by this method, I shall say nothing in this place. But the application of this method to the Natural Sciences calls for a few words of explanation and illustration. Following Plato's doctrine of ideas, or, if you choose, Aristotle's doctrine of essences, it neglected and discredited Aristotle's doctrine of appeal to facts, and the study of the facts of nature. I give the following example which I find in Herschel's *Discourse on a Study of Philosophy*, and ascribed to Galileo, though I have not been able to find it in any of his published works to which I have had access, and I can hardly believe that it originated with him, or can have been given by him in earnest and as exhibiting the method of reasoning and testing the truths of science which he encouraged or approved.

The object is to prove the "immortality and incorruptibility of the material heavens," and it runs thus in substance: "Change is either generation or corruption. But generation and corruption can occur only between contraries. The motions of contraries are contrary. The celestial motions are circular. Circular motions have no contraries, for (1) there can be but three simple motions: (*a*) to the centre, (*b*) around the centre, (*c*) from the centre; (2) of any three things only one can be contrary to another one of the two (that is, not to the two together); (3) but a motion *to* a centre is manifestly contrary to a motion *from* a centre. Therefore, a motion around a centre remains without a contrary. Hence the motions of the heavenly bodies being circular, can have no contraries, and hence these heavenly bodies cannot go to corruption and must be immortal and incorruptible."

Again, when Galileo found the doctrine with regard to the velocity of falling bodies inconsistent with the Copernican theory of the solar system, which he was inclined to adopt, he proposed to appeal from the deductions of the Scholastic Philosophy to facts and experiments. So he went to the top of the leaning tower of Pisa, and dropped two pieces of metal of different sizes and weight, though of course of the same specific gravity, and found that they came down together, the one of them, though it was the smaller and the lighter of the two, just as fast as the other, the larger and heavier. The Scholastics, however, had reasoned from the nature of weight that the greater one, on account of its greater weight would—and would because it must—fall the faster by just so much as it was the heavier of the two.

I give but one more example. When Torricelli invented the barometer, he found that a vacuum could be produced in the upper end of the tube at some twenty-nine or thirty inches from the bulb. The Scholastics, who seem to have been able to account for anything and were always ready with an answer to every question that was proposed or could occur to them, suggested that the rising of the mercury in the column was not due, as the scientific mind of the discoverer had suggested, to the pressure of the atmosphere on the mercury in the cup below, but to the fact that "nature abhorred a vacuum." Pascal proposed to try this theory by an appeal to facts, assuming that Nature's abhorrence of a vacuum would be as great on the top of a mountain as it was in the valley beneath, while the pressure which results from the weight of the air would be less by just the amount of the height of the mountain. This led to the experiment and verified the view that had been taken by the scientific men of that age, and as we now have it taught in our books of science, and developed into the doctrine of gravity and the law of universal gravitation.

These are but few of the examples that might be cited to illustrate the difference between the old scholastic method, and the new or inductive method and study of the Natural Science.

This process, as I have said, grew out of Plato's theory of ideas, and Aristotle's doctrine of essences, which was accepted, to the rejection of his views of cognition and generalization, which he so emphatically enunciated. And yet nearly all the attempts of proof that he makes are not of the nature of appeal to fact, but rather of demonstration. Aristotle is constantly reasoning in this way. For example, he explains the reason why a small object on the long end of a lever will balance a larger one on the other end, by referring to the nature of the curved line. "The ends of the lever move in curves," he says, and as the long end moves the furthest, there is more of a curve, and consequently a small weight on that end has an advantage over any weight that might be at the other end of the lever.

Much of the speculative theology of the schools during the Middle Ages was of this kind, and, in my estimation, it was about as senseless.

I have dwelt so long upon this subject because of its great importance to the history of philosophy and the theories of knowledge.

§ 4. The next great writer and thinker whose theory I shall consider was Descartes. I say the next great thinker, next after Plato and Aristotle, for there was but little in all the centuries between Aristotle B. C. 394, and Descartes, born A. D. 1596, except mere reiteration of some one or another of the doctrines of one or another of these two great and original thinkers, and efforts at combinations and compromises. It was as if one were trying to build a stone house out of the brick that had been obtained by tearing down an old edifice, under the impression that if we could only put the brick together in the right way, the house would be all right—of stone, of the most approved style, and rest on an immovable foundation of solid rock, rather than the unstable foundations of mere sand and stubble.

Descartes lived after the hundreds of years of controversy that had followed the age of Plato and Aristotle. He had seen and heard all that had been said, and knew all that could be said, on the two sides of the controversy between the Realists and the Nominalists. The theory of Conceptualism, proposed by Abelard, did not seem to solve the problem or clear up the difficulty that was involved. He, therefore, proposed the method of "interior observation," called in these latter days, "consciousness" and "reflection," upon the acts and states of the mind, which we can thus subject to immediate observation, as the only true and proper method. We may err, he assumed, in our analysis and interpretation of the facts of consciousness, as we may err, and often do err, indeed, in our understanding and interpretation of the facts and phenomena of nature that are seen in the outer world. But the *reality* of the facts we cannot deny; and with them we must begin our science of metaphysics, and our theories of knowledge. Calling, as it was common to do, our thoughts ideas, he clearly saw, as he thought, that there are three classes of ideas. The first class represents objects, which, though we must regard them as real, are not visible to the eye nor in any way cognizable by the senses. These ideas he thought must be *innate*, not perhaps exactly in the Platonic sense of having been in our minds when and before we were born, but rather in the more modern sense of having been *born in the mind* itself, *nees avec moi*, without any act of direct and immediate cognition of the objects the ideas represent. The other or next class he called adventitious, *etrangers et venir de dehors*, for he says: "If I hear a noise, or see the sun, or feel the heat, I cannot but judge that these sensations proceed from something out of myself. These ideas represent external or material objects." Then we have a third class, *faites et inventees par moi meme*, which he calls factitious. Such are the ideas of what never existed, as "sirens," "hippographs," and such like things, (*Med.*, III).

In analyzing the classes of ideas, however, he comes to the conclusion that the one universal and absolutely necessary element in those that he calls "adventitious," is extension, implying more or less of solidity; and the one indispensable and always present element in those that come from the mind by consciousness, is thought. Hence he makes *extension* to be the essence, or *differentia* rather, of matter and material things, and *thought* to be the essence, or *differentia*, of mind.

The "factitious" ideas, those made by the mind, may be of two kinds. In the one case they are mere fictions and represent objects that never existed and such as perhaps can never exist.

But in the other case all the ideas that we have of objects that we have never seen, but have only read of, or had described to us, are factitious in this sense —they are made in the mind, *par moi meme*, and are made and intended to represent real things.

Descartes was brought up and educated in the philosophy of which I have been trying to give some idea—Realism—or at least Realism as modified by some concessions made by Abelard and Thomas Aquinas, and generally acquiesced in. But he says of its character and value that it "gives one the means of talking plausibly about all things, and of exciting the admiration of those who are less learned than one's self." But he regarded nearly all its positive teachings as doubtful, and its influence on the mind and mental habits as bad. He said that when he came to think for himself he found that he had "opinions" on almost all subjects, but that many of them were at least very doubtful, and none of them his own in any sense, except that he had adopted them and professed them out of deference to the authority of his teachers, and perhaps in some cases from mere self-conceit.

§ 5. Descartes accepted for the practical purposes of life the commonly received principles of morality and religion, common deportment and social decorum. But in regard to all else, all that could be called knowledge or philosophy, he became, for the purpose, a critic and a complete sceptic, or agnostic, or know-nothing, if we prefer that term; and resolved to go back or down until he should find some one truth or assertion that he could not doubt or deny. This he found in his famous assertion or enthymeme, *eogito ergo sum*, "I think, therefore I am." "But," said he, "if one doubts, or even denies, he cannot doubt that he doubts or deny that he denies. And in either case, and alike, he must be—in order that he may doubt or deny, or there can be no doubt or denial at all." St. Augustine had found his way to the same principle and gave the same illustration of it about one thousand years before. This axiom, however, implied a difference between subject and predicate, substance and mode; that is, between the substantial *I* and its modes of existence, which it did not assert, and which formed no part of the philosophy of his day. It assumes that the I, or substance, could not exist except in some mode, and that the mode implies the reality of the substance. It is assumed that no mode could exist as a substance, or without a substance, in which, as the Realists would say, it inheres; or, as we would say, a substance of which it is a mode or property, and of which it may be predicated.

Descartes was in more respects than one the founder of Modern Philosophy and Methods of Knowledge. He divided all knowledge into three parts, (1) Philosophy, (2) Mathematics, and (3) Physical or Natural Science, and in each one of them he did good service.

But our concern with him at present is chiefly as the exponent of the theory of knowledge.

As I have said, with him all knowledge is included in the three departments, Philosophy, Mathematics, and Natural Science.

In Philosophy, according to Descartes, we begin with facts of consciousness that, I think, is to me a matter of immediate consciousness, and therefore I cannot doubt or disprove it. But the assertion, "I think," implies that I am conscious of thinking, and thus by inevitable necessity that the I that thinks is a substantial reality.

Hence as a general principle the facts of consciousness, those of which we are immediately conscious, are elements of knowledge; they are starting-points; we cannot deny them, we may err in interpreting them, mistake their character, and draw wrong inferences from them. But they are ultimate facts, the best known of all facts, and facts that cannot be denied. And we build up our philosophy or metaphysics on these facts, and by reasoning from them.

The acts of the mind are a manifestation of the mind, its nature and modes, just as the sensations in us are produced by, and are thus the manifestations of the external objects that we perceive around us.

It may be well to recall to mind what Aristotle had said on this subject as quoted in the last Lecture. And thus, in the view of both Aristotle and Descartes, we have in these observed facts of the mental states and acts of the mind, material and means for knowledge of mind, as we have by perception for a knowledge of nature.

We believe in the reality of external things only on account of the sensations they produce in us. We know them only by those sensations, and we call their properties by names which are indicated by these sensations, as hot or cold, and the like. These sensations correspond to the properties of objects. But there is an underlying substance which we cannot see. It is, to use his figure, like the bodies of men and women passing on the walk under my window, which, however, we can never see on account of the clothes, hats and caps, the coats and cloaks that are on their bodies and cover them from our sight.

In the case of the mathematics we begin, not with observed facts at all, but with definitions setting forth the essence or the essential nature of that about which we are to reason, and then proceed by the use of certain self-evident axioms to the desired conclusions.

But in the Natural Sciences we begin with observed facts in the outward world and proceed by induction and deduction, as Aristotle had taught.

In regard to the origin of knowledge, he held, as we have seen, that one class of our ideas is derived by consciousness or reflection upon our own mental states or acts. But of the self or mind, as he says, (*Med.*, VI), "In truth when I consider the mind, that is, when I consider myself in so far as I am only a thinking thing, I can distinguish in myself no parts, but I may clearly discern that I am somewhat, that is, absolutely one and entire. Yet, although the whole mind seems to be united to the whole body, when a foot or an arm is cut off, I am conscious that nothing has been taken from my mind."

Another class he regarded as derived from the objects we see, by means of the sensations they produce in us. He says (*Med.*, VI), "Out of myself, besides extension and figure, and the motion of bodies, I perceive likewise their hardness, their heat and the other tactile qualities, and in addition, light, color, and odors, tastes and sounds. And considering the ideas of all these qualities which are present to my mind and which alone [the qualities] I properly and immediately perceive, it was impossible for me not to think that I perceived certain objects wholly different from my own thoughts, which are bodies or material things from which those ideas proceeded."

The class of ideas which represent things that are invisible he is inclined to regard as innate. And among them most especially the idea of God. But at any rate he represents or reckons those ideas that represent substances as something more and entirely different from those that represent only modes or accidents. "And again," he says, "the idea by which I think of God as eternal, infinite, omniscient, omnipotent and the Creator of all things that are beside Himself, this I say has certainly in it more objective reality than the ideas that are represented by finite substances."

Descartes' theory of knowledge, and of the nature and origin of ideas which make up knowledge, was such as to make the idea of God and His existence of logical necessity. He developed and illustrated this doctrine in various ways which I have not now time to consider and set forth.

Descartes made the *essentia* of substance, the one only property common to all substances in opposition to non-living or unreality, to be simply being.

Liebnitz, after him, added causality, so that in his view a substance is that which not only is, but acts as cause.

This doctrine of Liebnitz is an important addition to the idea or definition of substance. To act, it must be, and not only be, but be something specific, if not personal. In fact the verb to be, in any and all its forms, requires a predicate after it, as the words do not completely express any idea. We cannot even talk intelligibly about that of which we can say only that it is.

And we know things only as they act in us or upon us as causes. The mind acts as cause when it thinks —external objects act as causes whenever they produce the sensations we perceive them by.

We have then matter and spirit. The *differentia* of the first or matter was in his, Descartes', estimation extension, and that of the latter—spirit—was thought; so that whatever is extended is material substance and whatever thinks is spiritual substance. And both are causes. But one class of properties exists only as modes of matter and the other only as states and acts of mind. And in both cases we know them only as they act as causes in us or upon us.

§ 6. The importance which Descartes attached to sense-perception as furnishing one class of our elementary ideas, the matter and substance, so to call it, of our ideas of things or idea-images, caused a great deal of attention to be given to sense-perception in regard to its methods and possibility.

Two principles as axioms of the scholastic philosophy which had prevailed now for several centuries, and had been growing all the while, presented seririous difficulties. The one was that "nothing can act but where it is." Does, then, the mind go out of the body to act on the object which we think we perceive? This will hardly be maintained. Does, then, the object come into the mind? This is less likely. Hence the difficulty seemed to be insuperable.

The other principle was, that nothing can act upon another thing without some likeness, or some one property at least, that is common to both." Thus, in the case of the resistance of bodies, they are both hard, or they could not act on each other in the way of causes producing the phenomena of resistance, or the motion of the one by the impinging of the other upon it. But in Descartes' theory there was no one property common to both mind and matter. How, then, could either material objects produce sensations in us, orthe mind perceive the objects?

Malebranche (b. 1638), in view of these axioms and the difficulties that grew out of them, denied the reality of external objects and proposed the theory of knowledge which has been called, "Seeing all things in God:" that is, we do not see the objects themselves, for they have no objective existence, but only their ideas which are in God, and which He produces or creates in our minds when we think we see the things.

Liebnitz, in view of this difficulty, proposed what has been called the theory of "pre-established harmony." He supposed the universe made up of atoms, monads, that so act in harmony, that without acting on each other, they concur in their actions, like the hands of a watch, which, although they do not act directly on each other, yet concur in their motions, so as to come around together at stated times, and thus really indicate the hour of the day.

But neither of these axioms presents much difficulty at the present day. We have discovered gravity and believe that the sun and moon and earth do act on each other, though far off and apart from each other, notwithstanding this medieval axiom. And we do believe and know that material objects do somehow act on the mind and produce sensations and excite the acts of perception and volition, though we cannot explain their mode of operation.

§ 7. We come now to the next great name, that of John Locke. He was born in 1632, and lived thirty-six years after Descartes, until 1704. And since his time few if any names have been more conspicuous than his in the discussions of philosophy and of the theories of knowledge—its origin, nature and extent. But before we can go on with our discussions of Locke's theory, we must pause a moment to consider one or two of the names that come before his in the chronological order of the discussion.

Francis Bacon was born in England in 1561, seventy-one years before Locke and thirty-five years before Descartes was born in France. He was educated at Cambridge, and early came to have a great dislike for the prevailing philosophy that was taught there. As we have seen in the case of Descartes, that he thought but little of the philosophy that prevailed, the scholastic, so Bacon says of what he was being taught at Cambridge: "They learn nothing at the university but to believe; they are like a becalmed ship: they never move but by the wind of another man's breath, and have no oars of their own to steer withal." Again in the *Nov. Organon Axiom*, XC, he says: "They were chained down to the writings of particular authors;" everything "was opposed to the progress of the sciences."

It does not appear that Bacon knew much of the real Aristotle. What he knew and disliked was the prevailing philosophy, the scholastic, which he called "Aristotlean," but which, as we have seen, was a compound made up of the ideas of Plato for its substance, and the deduction from them by what was regarded as the method of Aristotle.

But I know of scarcely any two minds, who are among the greatest that the world has seen, that are more alike, as I regard them, than Bacon and Aristotle. It is true that Aristotle gave far more attention to the metaphysical part of knowledge than Bacon, and less to the methods of science. But Aristotle agreed with Bacon in his views and theories on this part of the subject, and he did, by way of observation, the getting, analyzing and classifying of facts, far more than Bacon. But what Aristotle did in his line was not appreciated in his age. He was much too far in advance of his age for that; and consequently his works fell into neglect and forgetfulness. But as a result of a somewhat careful and prolonged study of both authors, I am inclined to think that Aristotle understood the philosophy of induction at least quite as well, if not better, than Bacon did.

Like Aristotle, Bacon aimed at taking a complete survey of the whole field of human knowledge and mapping it out into its various departments. Aristotle, in fact, as I have already said, went over the whole ground, as did both Bacon and Descartes, but each of these two confined himself to, or at least specially elaborated, one only of the two great departments, Physics and Metaphysics, while Aristotle, as it seems to me, went fully as deep into each of them as either of these modern philosophers did into the one department which he had chosen to make his specialty.

Bacon seems to have accepted, or rather never to have thrown off, the Platonic element of scholasticism, ideas. He says indeed but little on that point. And if at any time any expression has escaped him that implies a different view, it is merely an instance in which his strong common sense and sturdy English practical view of things outcropped and, for the moment, at least, triumphed over the doctrine of the philosophy which he had been taught at Cambridge in his undergraduate course. As to "the philosophy which we have received principally from the Greeks," he says, "in regard to its usefulness it would be acknowledged to be puerile, or rather talkative than generative, being chiefly fruitful only in controversies, but barren of effects. (*Preface*). But we must remember that he had in mind the scholastic philosophy of his age, rather than the Greek philosophy as taught by Plato and Aristotle.

Bacon seems to have acted on his own principle, "It is better to set up one large light in a noble room, than to go about with a small candle and try to illuminate every corner thereof" (B. I). So he took "the noble room" of the Natural Sciences as the chief field of his labors.

In Bacon's view, "the justest division of human learning is that which is derived from the three faculties of the soul [and the scholastic philosophy reckoned but the three—reason, imagination and memory]—(1) History, relative to the memory, (2) Poetry, to the imagination, (3) Philosophy, to the reason." "By poetry we understand feigned history or fable. History is properly concerned about individuals circumscribed by time and space. But philosophy, forsaking individuals, fixes on notions [that is, the *essentia* and not the "accidents"], and is employed in compounding and separating these notions according to the laws of nature and the evidence of things themselves."

Bacon then refers to "the origin of our ideas" and says, "Individual objects first strike the sense, which is, as it were, the port or entrance to the understanding. Then the understanding ruminates upon these images or impressions, . . . forming them into certain classes by composition or separation." In this Bacon entirely coincides with Aristotle and dissents from Plato's view of the origin of general ideas. "As history and experience are one and the same thing, so also are philosophy and the sciences." And he adds that even "divine learning does not call for any other division." And he makes, and always keeps in view, the important distinction between discovery on the one hand and revelation on the other. Revelation is what God makes known to us by inspiration, and discovery is what we gain of truth by the legitimate use of our natural powers. "Knowledge," he says, "is like waters; some descend from the heavens, and some spring from the earth," "for all knowledge springs from a two-fold source—either from divine inspiration or from external sense." "We therefore divide science into theology and philosophy. In the former we do not include natural theology, but restrict ourselves to inspired divinity." "Philosophy has three objects, God, nature, and man. . . . Whence it is proper to divide philosophy into the doctrines concerning Deity, the doctrine of nature, and the doctrine of man."

But he holds that there must be universal science that is common to all three of the branches named—a sort of a *philosophia prima*, some general science consisting of "axioms, that are common to all three of the great branches" just named.

"Axioms of this kind," he says, "are numerous," and he gives examples. "If equals be added to equals, the wholes will be equal," and then he proceeds to say that this holds in justice or law as well as in mathematics. As another example he gives, " things agreeing to the same third thing agree with each other." And it is suggestive of the state of what was regarded as "logic " in his day, that this axiom, rather than the *dictum* of Aristotle, *de omni et nullo*, was regarded as the fundamental axiom on which all syllogisms rest. As another example Bacon gives, " Nature shows herself best in her smallest works." As still another, "All things change, but nothing is lost." " This is an axiom," he says, " in physics, but it holds in natural theology." And to give one more example, " Things are preserved by bringing them back to their principles." This, though an axiom in physics, is good, he says, in politics as well, " for the preservation of states depends upon little more than reforming and bringing them back to their ancient customs."

The collection of these axioms, or the formation of a " primal philosophy," Bacon regards as the first step in the advancement of learning. And he seems to think that this will be done best by consulting the past, the books that have already been written, very much like the *Books of Sentences*, which were so much in use in the Middle Ages. These he would make the *a priori* principles of all knowledge.

A slight examination of these axioms, however, shows that they are made up of three entirely different classes: (1) axioms or self-evident truths, such as the first and second just cited; and (2) maxims which are mere general notions with possible exceptions; and (3) mere *dicta* of men acknowledged to be authority.

Now, while the axioms of the first class are infallibly true, absolute and universal, the *dicta* have been a source of error and one great obstruction to science in all ages. I have given one or two examples in the last Lecture, as standing in the way of the two doctrines with regard to the velocity of falling bodies, and the weight of the atmospheric pressure as accounting for the vacuum in the top of the barometric tube. And in fact these *dicta* constitute the assumed principles of that conservatism, which, while it is of inestimable value as "holding fast that which is good," it is also an obstacle to progress in correcting the errors that have been held as truths in the times that are past.

Bacon saw clearly that the first tendency of his method was to scepticism, and even to atheism. But this is not the final or ultimate tendency. It is only a superficial view. "Undoubtedly," he says, "a superficial tincture of philosophy may incline the mind to atheism. Yet a further knowledge brings it back to religion, for on the threshold of philosophy, when second causes appear to absorb the attention, some oblivion of the highest cause may ensue; but when the mind goes deeper, and sees the dependence of causes and the works of Providence, it will easily perceive that the upper link of Nature's chain is fastened to 'the throne of God.'" (B. I., p. 31.)

It would lead us too far from our purpose to discuss the principles of Bacon at length, but they do not differ in their general character from those that were laid down by Aristotle, though much more full in their detail of precepts and rich in their illustration by examples. Nor do they differ from the method that had been recommended and in use more or less by all the students and advocates of natural science from Alfred the Great in the thirteenth century, including Copernicus, Kepler, Galileo, Tycho Brache, Paracelsus, Agricola, Libavius and Von Helmont, who was his contemporary and who began the new analysis leading to the doctrine of the chemical elements which Bacon called a "fiction."

Yet Bacon was a great man nevertheless—one of the greatest the world has ever seen—and gave a great impulse to the progress of knowledge, though by no means one of the most important so far as original theories of knowledge are concerned. And in fact in this respect, if it were all, he would hardly deserve mention in this connection.

But it is quite time that we pass on to the brief notice of one name more that must be mentioned before we come to John Locke, and this is Thomas Hobbes, who was born in England, A. D. 1588, forty-four years before Locke, twenty-seven years after Bacon, and eight years before Descartes in France.

Hobbes, apparently without a very careful consideration and rather as a matter of reaction from the idealism and mysticism that were resulting from the doctrines of the Realists than anything else, adopted the dogma, as a fundamental point, that all ideas are derived by sensation, and of course, therefore, from external and material objects. And he carried this view logically to its legitimate extremes. He became a Materialist—denied the reality of a soul or mind in man, the existence of God and a future world for man. Consequently he held that natural philosphy is the only science, and all the knowledge that we can have. He denied human freedom or the power of choice in man, and held to the doctrine that in the state "might makes right," and the only proper motive for man to act upon is self-interest, if not selfishness, and the only enjoyment and happiness that is worth pursuing is the mere personal pleasure that results from self-indulgence, and the pursuit of selfish ends.

But a doctrine so repugnant to the best instincts of mankind could not gain general acceptance, nor, as it would seem, long hold its sway over the minds of men. And yet it is in accordance with some of the lower instincts, and many of the pursuits of mankind.

§ 8. John Locke, born in 1632, was educated at Oxford, where he graduated in 1655; but he remained there as a student for some years afterward, until 1664. He studied medicine, though he does not appear to have practiced that profession. But, like Descartes and Bacon, he formed a great dislike for the prevailing philosophy which was taught then in the university, and he set himself to revise the very foundation on which it rested, the doctrine with regard to the origin and nature of our ideas.

Before going further with our discussion it will be well, I think, to consider a little more distinctly what is meant by the word idea. Locke says that he has "used the word to express whatever is meant by phantasm, notion, species or whatever it is which the mind can be employed about in thinking." "I think it [the word idea] serves best to stand for whatsoever is the object of the understanding when a man thinks." "I presume," he adds, "it will be easily granted me that there are such ideas in men's minds. Every one is conscious of them in himself, and men's words and actions will satisfy him that they are in others" (Int. Sec., 8).

The progress of science since the days of Bacon and Locke has furnished us with an illustration of the theory which is thus assumed by Locke, that makes it necessary for us to consider the theory itself, as a means of understanding and appreciating his discussion of the subject, before we go any further with our effort to understand his theory of knowledge.

It is true that he says at a later stage of the discussion, and as his theory implies, that what we are really conscious of is *the acts and states of our own minds*. Are ideas then only states and acts of the mind? He does not mention this in the definition which we have just quoted. But we shall have occasion to consider this subject further on in our Lectures.

But the illustration of this theory which I wish to give, and to which I wish to call special attention, is derived from the science of chemistry. Knowledge in this theory and as it has been regarded since the time of Plato, is considered as made up of ideas, just as the material world is made up of objects, endless in number and form, but whatever the form or color or general appearance of any object may be, it is composed of what are called "*elements,*" in their various combinations. In chemistry these elements are, as at present recognized, only about sixty-four or five.

In order to understand Locke's theory, we must consider ideas of things, if we are to regard them as things in the mind, as complex objects, made up of certain elements, just as most of the objects around us are made up of two or more of the chemical elements. These elements make what Locke calls the "matter" of the ideas. In Kant's phraseology, which has come into somewhat general use since his day, they are "*the content*" of the ideas; that is, they are the elements, matter, or what is contained in the ideas, just as oxygen and hydrogen, for example, are the elements of water.

These materials, the "matter" of our ideas, are but the properties and modes of the objects, which in Locke's theory the ideas themselves represent in our consciousness, or rather the ideas are made up of the ideas of those properties which, therefore, we will call, for convenience sake, elementary ideas.

Thus my idea of an orange, for example, is a complex idea, made up of the elementary ideas of color, size, form, taste, odor, etc., which are simple or elementary ideas.

§ 9. Now the fundamental characteristic of Locke's system was his denial of the reality of any innate ideas, whether we regard them as simple and elementary ideas of the properties of things, or the complex ideas of the things themselves, or the general ideas of classes.

He begins by considering the mind as a piece of white paper, "*tabula rasa*," void of all characters; that is, without any ideas. "How comes it to be furnished?" "To this I answer in one word—from experience, in that all our knowledge is founded, and from that it ultimately derives itself. Our observation is employed either about external sensible objects or about the internal operations of our minds."

"FIRST, our senses conversant about particular sensible objects do convey into the mind several distinct perceptions of things according to those various ways wherein those objects do affect them; and thus we come by those ideas we have of yellow, white, heat, cold, hard, bitter, sweet, and *all those which are called sensible qualities*. This great source of most of the ideas we have depending wholly upon our senses, and derived by them to the understanding, I call SENSATION.

"SECONDLY, the other fountain from experience which furnisheth the understanding with ideas is the perception of the operation of our own minds within us . . . which operation, when the soul comes to reflect on and consider, do furnish the understanding with another set of ideas which could not be had from things without; and such are perception, thinking, doubting, believing, reasoning, knowing, willing, and all *the different actings of our own minds* which we, being conscious of, and observing in ourselves, do from these receive into our understandings, as distinct ideas as we do from the bodies affecting our senses." "This source of ideas," he adds, "every man has wholly in himself." "But as I call the other sensations, so I call this REFLECTION."

"These two, I say," he continues, "viz. (1), external material things or the objects of sensation, and (2) the operations of our own minds within, as the objects of reflection, are to me the only originals from whence all our ideas take their beginning." And he adds by way of emphasis, "The understanding seems to me not to have the least glimmering of any ideas which it doth not receive from one of these two." "Thus, when we have taken a full survey of them and their several modes, combinations and relations, we shall find to contain all our whole stock of ideas" (*Ess.*, B. II, §§ 2-6).

I have thus quoted Locke's words at such great length, not only on account of the great importance of the subject, but also because one part of it has been almost, if not quite and entirely neglected, notwithstanding the emphasis with which he utters it, as we shall see as we proceed.

Locke, however, was not the first to propose this source of ideas. As we have seen in our second Lecture, Aristotle distinctly recognizes it as the source of our ideas or knowledge of self. So, too, in this Lecture Descartes recognizes it. Both he and Aristotle not only speak of our being conscious of our sensations, acts of perceiving, etc., but they distinctly speak of it as the means by which we get our ideas or knowledge of our own minds. And yet nobody had followed it out. Even Locke does not follow it out very thoroughly.

Now on this theory no ideas are innate in the ordinary sense of the words. The "matter" of them all comes into the understanding from either the objects in the external world through sense-perception, or from the mind itself by consciousness, that is, by the avenue of sense-perception for the one class and by that of consciousness for the other. And the mind itself, *by its own action* in its "several modes" of combinations, makes up for itself the ideas we have of things, which constitute the sum of all our knowledge.

§ 10. I have referred to chemistry for an illustration of our subject, and it is useful in many ways. All the objects around us, however innumerable and unlike, are compounded of the sixty-four or five recognized elements. So our ideas of things are made up of the comparatively few elements that the mind gets from the cognition of objects, material objects, by sense perception, and the mind itself by consciousness. And the objects make up a universe, only as they are in relations to one another, making *logical* wholes as species and genera, and *collective* wholes as groups, and are expressed in sentences according to the nature and laws of language.

Locke devotes the first of his *Essay* to the proof that there are no innate *axioms* or *principles*, whether speculative or practical, in the mind. Children have them not, uneducated savages have them not, and even the ignorant and thoughtless in civilized countries do not have them in their minds, as matter of conscious knowledge. At a later stage in his work, Locke recognizes such axioms or first principles as matters of intuitive judgment, but yet in that view they are ideas, if indeed they can be called ideas at all, which are formed *in the mind* and by the mind itself; and out of the matter which had been introduced from one or the other of the two sources named—(1) the material objects around us, and (2) the minds within us, and by one or the other of the two means or avenues already mentioned, sense-perception and consciousness.

In Chapter IV Locke proceeds to consider ideas of things as being more elementary than such axioms as he had been considering in the two preceding chapters. He holds that no principles can be innate, in the proper sense of the word, unless the ideas represented by their two terms are innate, that is, principles or axioms are propositions asserting a relation between objects, or their ideas rather, in Locke's theory, and hence unless the ideas themselves are innate, the propositions asserting the relation cannot be innate. They may be indeed intuitive, so that we affirm the relation just so soon as we have the ideas distinctly before the mind. But they cannot be regarded as innate in any proper sense of the word.

Locke then proceeds to consider what he regards, and thinks others will accept, as test words, such as identity, God, substance, time, space, infinity, etc. But as I shall have occasion to speak of these test examples soon in another connection, I will pass them with this mere enumeration of them at the present. (See next Lecture, Sec. 4.)

The difficulty of understanding and accounting for sense-perception, that so embarrassed Malebranche, Liebnitz, and other disciples of Descartes, did not escape Locke. His theory was that " certain singularly imperceptible bodies" come off from the proper ties of the bodies we see, and entering the " sensorium through the organs of sense, excite there the motions by which our minds form the ideas we have of them."

Now the first principle, the foundation and cornerstone of Locke's theory of knowledge, is that all the elements of our knowledge come from or by observation of real objects.

To recur to our chemical illustration; the chemist with his sixty-four or five elements can go into his laboratory and make, we will suppose, by compounding them, any or all the compound substances that are known in nature. And he may in fact make some that are not found in the present state of the material universe. But he cannot make or originate a single element besides those he now has, nor can he get even these elements in any other way than by analysis from some existing compound in which they are already contained. To get them or any new one in any other way, would be an act of creation, for which man, in the present state of his existence and powers, is not competent.

So with ideas according to Locke's theory. With the few elementary ideas derived from these two sources, the one or the other of them separately or both combined, we may compound them into complex ideas of things that we have seen, the adventitious ideas of Descartes, or into ideas of things that we have never seen, and which never did or can exist, the monstrosities of popular superstition and of fable, "the fictitious ideas of Descartes." But there our power ends. We have no elements that are innate, and we cannot originate any of ourselves, or get them at all, except as we get them by sense-perception or consciousness.

Hence our ideas in the mind imply either a reality out of the mind, or the mind itself, which was the observed object from which the idea was obtained. Thus, if one has the idea of a white lion, it does not necessarily imply that he has seen a white lion, or that there ever has been one. But it does imply that there is something external to his own mind which is white, and that he has seen such an object, though the idea of a lion may be purely "factitious." The idea of whiteness, therefore, implies both the reality of an object that is white, and the reality of the act of perception. And the act of perception implies the reality of the mind that perceives. No act of perception could take place without the two objects in mutual relations to—shall we say reciprocal action upon—each other?

And this view is confirmed by all experience. The blind, as we all know, have no ideas of the colors of objects, and the deaf have no ideas of their sounds. And so on throughout the list of the special senses. Not even in the vagaries of dreams or the wildness of delirium do these elements or ideas come into the mind except in the way described.

It will be carefully noted that Locke recognizes two entirely distinct and different classes of elementary ideas, one, of the properties of material objects called sensible properties, and the other, ideas of the acts and states of the mind. And in a subsequent section he recognizes the feelings of pleasure and pain, as furnishing elements of ideas of the soul, as well as the active states of perceiving, reasoning, willing, etc.

I call attention to this fact because, strangely enough, the ideas of the second class have been almost if not entirely overlooked or ignored by both disciples who professed to receive his system and carry it out to its legitimate results; and by the critics who have attempted to criticise and refute it.

Locke's system, in its accuracy and completeness, was in fact in advance of his time, as thoroughly so as was Copernicus's theory of the solar system, and it is, as I believe, as completely destined to be revived and universally received by intelligent people as Copernicus's system has been already.

I think that Locke has stated the facts correctly, and that the world is coming to see and to acknowledge that he has done so.

If, then, Locke is right, we have *immediate* knowledge of the facts of consciousness only, that is of the acts, states and feelings of our own minds. One class of these acts, or states rather—sensations—we refer to some external object. We know that we do not and cannot produce them ourselves, voluntarily or by mere effort of will. They are not the effects of the action of our own minds, we cannot control them. Hence we refer them to external objects, and thus speak of perceiving the objects.

And for the most part we speak of that kind of knowledge as immediate. But in the stricter sense, it is not immediate, for it is always obtained by means of our sense-organs. And any change in these organs may occasion an entirely different impression concerning any object that we perceive by them.

§ 11. Any account of Locke's system or theory of knowledge, however, would be quite inadequate if we were to omit all reference to his B. IV, ch. vii, in which he discussses the fundamental axioms of all knowledge, "intuitive judgments," as he calls them. These judgments contain no new elements of ideas, they are merely the affirmation of relations between objects, or rather, as Locke would say, between ideas that represent objects, whether simple or complex. He holds that there are certain ideas, the relation between which is seen by immediate insight, or intuition, as it is sometimes called. Nobody denies them, or can deny or doubt them when he once understands the terms or words in which they are expressed. Such axioms are: "Nothing can be *x* and not be x at the same time and in the same relation." "The whole is equal to the sum—or is the sum—of the parts."

These axioms or intuitive judgments lie at the foundation of all knowledge, or if not at the foundation of knowledge, at the foundation of all reasoning, and are implied along with the ideas in any affirmation we make, whether in regard to things material and visible, or immaterial and invisible.

These axioms are, as we have seen, of two kinds: the one class states a relation between the properties, or elements of ideas, which are or may be supposed —I say *supposed,* not *conceived*—to be combined in any one object. In regard to such properties, we often see at once, that they (1) *can* be combined, (2) that they *must* be combined, so that where the one is the other must be also, and (3) that they *cannot* be combined.

Thus whatever is hard may be white. But as an example of the third, whatever is extended cannot be impalpable, so as not to be either felt by the touch of the hand, or resist pressure. Or in other words, all matter is impenetrable, so that no two atoms can occupy the same point in space.

But a proposition must have two terms, a subject and a predicate, and thus it imples two ideas in Locke's sense of the word idea, though we often speak of a proposition as containing or affirming and asserting an idea, as if there were only one idea involved or implied. And in fact this is in accordance with Plato's use of the word. In his use, and in the popular use, the statement, "A rectangle whose sides are each four feet *contains* sixteen square feet," is but the expression of one idea, though we may have the two terms connected by the term *contains*—is equivalent to or "is containing."

But in Locke's sense and in the sense to which we must confine ourselves for an intelligent discussion of our subject, each proposition must have two ideas, but the two terms may be in one case, only different names for one and the same thing, and thus we have in fact but one idea with two terms or words to express it. But in all other cases there must be two ideas, one expressed by the subject, and the other by the predicate of the proposition.

There are but three forms of simple propositions, (1) those just referred to in which subject and predicate are only two names for the same things, (2) those in which the predicate is an adjective, as "snow is white," and (3) those in which the predicate is a common noun, as "horses are animals."

Hence as propositions are made up of terms expressing ideas, there can be no *element* of an idea, or elementary idea in the proposition that is not to be found in one or the other of the ideas which are expressed by the terms.

§ 12. The idea of a thing must always be a complex idea, that is, it must be made up of several elements. It is probable that we get these elements separately, as we certainly do get them for the most part by different avenues, as the eye, the ear, etc. Consequently, as the mind compounds them in the process of forming the idea, it can analyze or separate them so as to think of each one of them separately, and thus form what we call abstract ideas, or rather ideas that we express by abstract terms, as roundness, hardness, etc.

And each and every one of the properties which we have thus combined into the complex idea, or can obtain from it by analyzing it, may be predicated of it as an adjective in the second form of propositions as given above.

Here then is one test of the correctness, the accuracy and the completeness of Locke's theory of the origin of our ideas.

Take the case already cited, an orange. We say it is round, hard, etc. These elements we get at first by sight, as it were, at first sight. But on further inquiry we find that it grew on a tree, and the tree grew from a seed, etc. We have also its chemical, medicinal and nutritious qualities. And all these we can predicate of the orange. But there is none of them that did not come into the mind through some one of the senses, as exercised by some human being like ourselves.

Or, again, take the mind. What do we or what can we say of it? Sometimes people say that we know nothing of its substance. But then it is most likely it has no "substance" in this sense of the word. We know what it does—it perceives, remembers, reasons, chooses, feels pleasure or pain, hates or loves, as the case may be. And we can thus predicate or affirm of it what we have been conscious of, terms expressing ideas that denote properties or states of mind that have actually occurred within us, these only.

Or again, take a third case. There is an object before me; suppose it is a dog. I get my ideas, all that I affirm of his size, color, form, etc., by sense-perception. But I see that he moves about as a chair or table cannot. And not only so, but more than this, he seems to know me, shows signs of affection, and in some cases signs of reasoning and voluntary actions. But all these ideas which I may ascribe to him, affection, reason, volition, etc., as accounting for his acts. I have gotten from my consciousness of what occurs in my own experience. Whether he actually possesses them or not, is quite another matter. My ascription of them to him is my theory of the nature of his actions. But what I want now to have considered, is the fact that I ascribe to him, bodily, nothing but ideas that have been obtained by sense-perception, and mentally, nothing but what I have been conscious of in my own experience, no idea nor element of an idea except such as have been obtained in one or the other of the two ways described by Locke.

A case of a different kind may be given. When Newton first announced his theory of gravitation he recognized the fact that his doctrine of masses so far apart as the sun and moon and the earth acting on each other by way of attraction, was something of which we can have no conception. I can push whatever I can reach, and so, too, I can pull it to me.

I can get hold of it. But how to push or pull that which is out of my reach is a matter of which we have no experience and therefore no idea. And within the last year or two Huxley has renewed this consideration and suggested it as a reason for doubting, even at this late day, the theory of gravitation.

I have already referred to the negative evidence of the correctness of Locke's theory, namely, that the blind have no ideas of color, the deaf no ideas of sound, and so on. It has been claimed that we have ideas that cannot have come by either of these channels named by Locke. I shall consider them in the next Lecture. But before I leave this part of my subject, I want to call attention to one more point.

Locke's theory must be understood as referring only to the elements of ideas which he called "matter" in the strictest sense of the word. And here we may encounter some difficulty, both in testing it and in discussing the objections that have been offered to it. What is an element of an idea? The chemist will tell you that he has no test for an element in his science except the fact that it has not been resolved by analysis into simpler elements or component parts. So with us, that which has not been resolved and thus far resists all efforts to resolve it, must be regarded as elementary. Thus I regard white, red, yellow, and blue as elementary colors, so that one who never had seen anything that is white, or red, or blue, even though he were not blind, could have no idea of those colors, or understand what the words we use to denote them mean.

But I think the case is different with gray, orange, purple, etc. I think that one who had seen two objects, one of them white and the other black, could imagine one that is gray and be made to understand the meaning of the word, though he had never seen an article that is of a gray color.

And, finally, I think there is one more test. *No absolutely elementary idea can be defined.* We cannot define whiteness so that a blind man will know what it is, or what the term means. Nor, if I am right, could we explain it, the idea, the term or the color, to any one who, however good his eyesight may be, had never seen any object that we and he and the world are agreed in calling white.

And for this reason I think that even if there were any element of knowledge, that is, any elementary idea, that had not been obtained in one or the other of the two ways described by Locke, we could have no term or word to express it. We should be in relation to it like the blind in relation to color, or the deaf man in relation to sounds. We could define and describe, as I think, something that is gray, or orange, or purple, if one had seen objects that are white and black, red and yellow, red and blue, but not at all one of the elementary colors.

What I have thus described as possible is in fact constantly occurring. Every few days our manufacturers of fancy goods are treating us with something that is of a new color, and called by a new name. We that have seen it, describe it to others who have not, by comparing it with things that we and they have seen. It is red with just a shade of blue, or by some such comparison. But if it were of an elementary color that the person we were talking to had never seen, we should have no such resource. There would be no resource but by a sight of the object itself.

In fact, as Locke says, and it results from his theory, man's ideas, and so his knowledge of things, is limited by his experience. In the earliest stages of his life, that experience is limited pretty closely to the things he has seen. But as he grows up he begins to imagine things that he never saw, and knows much of which he has never had *personal* observation or experience. But in all this he is limited in the formation of his ideas, whether "adventitious" ideas of things that exist and may be seen, or "factitious" ideas of what no one has seen, and possibly has never existed or can exist, limited to those elements of ideas which have been gained by sense-perception of things around us or consciousness of the mind within man himself.

LECTURE III.

THE CRITICS AND DISCIPLES OF LOCKE.

§ 1. Locke's philosophy has had rather a strange development, or series of developments, both in England and on the continent of Europe. In fact it has been the starting point for all systems and speculations since his time. But no one of his "disciples" or his "critics" seems to have taken the whole theory, in both of its parts, into their minds, or to have appreciated his system.

I propose in this and the next Lecture to follow out some of these developments, and I begin with that of Reid, the Scotchman, and that of the Frenchman, Cousin.

There were really three distinct movements in philosophy that took their inception and starting-point from Locke's essay: (1) That of Hume and the skeptics and the agnostics of the present day; (2) that begun by Reid in Scotland and continued by Royer Collard and Cousin, in France; (3) that begun by Kant and continued by Hegel in Germany.

The first of these, as already intimated, was in the direction of atheism, or agnosticism. The movement commenced in each of the other cases was in the direction of faith and belief, though with very different results, as we shall see.

Those who were so disposed had neglected the fundamental principle of Locke's system, namely, that all ideas imply the reality of the observed object from which, by the act of observation, they are obtained. And then in England his professed disciples neglected the second class of elementary ideas as described by him, namely, those which represent our own minds, or rather their acts and states, and thus they deduced from what was accepted and called his system, conclusions of a nature alike fatal to earnestness in religion and sound principles in morality.

§ 2. Dr. Thomas Reid (b. 1710) undertook to counteract the bad influence which, in this defective form, had been derived from it by Hume and others, and represented as its legitimate fruits.

In the first place, Reid denies Locke's doctrine that in thinking of external objects, the object with which the mind is immediately occupied is not the object itself, but its idea, or image; in the mind. He maintained that we perceive the object immediately and that the mind in thinking of it is occupied with the object itself immediately, that is, without the intervention of any idea of it. Reid's appeal was to "the common sense of mankind."

He says, "the vulgar, that is, common people, allow or believe that the expression '*having an idea of a thing*,' implies a mind that thinks, an act of that mind which we call thinking and an object about which we think. But besides these three the philosopher conceives that there is a fourth, to wit, "the *idea* which is the *immediate* object of mental activity when we are thinking." He then adds: "I believe ideas in this sense are mere fictions of the philosophers."

And I think that Reid was right in both these points, namely, that which we perceive is the object itself, and the object is also what we think about, or that "with which the mind is occupied in thinking," and that the ideas considered as realities in the mind, whether they can or cannot exist out of the mind, are mere fictions; and that what we really mean by saying that we *have an idea of a thing*, is, so far as facts and truth are concerned, only the same as saying that we are thinking of the thing. And this is Reid's view.

In the next place Reid did not fully appreciate Locke's theory and was not quite satisfied with the doctrine that all the elements of our ideas or knowledge come from experience, or are at least acquired by sense-perception and consciousness.

In fact the analysis which I have given, and taken so much pains to illustrate, does not seem ever to have occurred to Reid. And, as we shall soon see, Cousin, the French philosopher, overlooked it altogether. And in fact Locke himself is somewhat at fault in this matter. He did not bring out this point of his theory, as we now see to be necessary, and show that what we get by the primary acts is not the ideas of things, but only their elements, though in speaking of them Locke makes mention of the elements only as color, hardness, perception, memory, volition.

So thus Reid says (Ess. II, chap. 6, p. 2), "the child sees the jack and every part of it as well as the man. The child, therefore, has all the notion of it which sight gives; whatever there is more in the notion which the man forms of it, must be derived from other powers of the mind." But Reid does not tell us what those "powers" are. And there is nothing in the fact stated that is contrary to, or tends to confute, Locke's theory when rightly understood. For, on that theory, or at least in accordance with it, the elements of ideas that enter into our idea or notion of a thing are not all of them acquired at once and at first sight. On the contrary they are acquired gradually, and one after another, as we see and experience more and more of the object itself.

Take, as an illustration, the idea we have of a man. It is at first merely an idea of his form, size, color, etc. After a while we learn by observation and experience that he has within his exterior contour a framework of bones, a system of vital organs, and has also a thinking mind which is at least something like our own. And then our idea becomes more definite and individualized as we learn of his past history, present opinions, purposes and relations in life. But in all this we get no new *elements* of ideas, or none at least that are not derived, as Locke maintains, by one or the other of the two sources specified by Locke—sense-perception and consciousness. And Reid, so far as I can now recollect, does not make any direct effort to show to the contrary.

Reid's system, however, has not proved satisfactory to either: (1) those who, on the one hand, claim to be more profoundly metaphysical or philosophical, or (2) to those who, on the other, profess to have a disregard, if not a contempt, for all metaphysics—for all and everything but "facts" and the natural sciences.

Reid's work is commendable for its sterling common sense. As I have just stated, he rejects the philosophers' notions of ideas, calling them mere fictions, as Aristotle had done, and he insists, in accordance with the common sense of unsophisticated men, that what we see and think about are the real objects themselves.

But Reid seems to have had no appreciation of Locke's second class of elementary ideas—those derived from consciousness—and their proof of the reality of a soul in man. He rests his belief in this respect in the existence of God and morality, upon the common sense of mankind.

But as it is the system which is most in accord with the common sense of mankind, it is also the one taught in some of its forms, so far as its essential characteristics are concerned, in most of our schools and colleges. It stands between the two extremes—that of agnosticism on the one hand and that of idealism on the other.

§ 3. The other name that remains to be considered in this line in this Lecture is that of Victor Cousin. He was born in France in 1792. He returned from Germany in 1826, where he had studied the philosophy of Kant and had heard the lectures of Hegel. He began his course of lectures by a review of the "History of Philosophy" in the Sarbonne. Perhaps no course of lectures on a subject which is so abstruse and generally uninteresting, not to say repellent, was ever attended by such a large concourse of hearers. There are said to have been sometimes from three to four thousand in attendance.

"Locke's Philosophy," as it was called, omitting the two elements named above, namely, the reality of all objects cognized and the second class of the elements of "the matter" of ideas, derived from consciousness, had been introduced into France by Condillac, 1766, and developed into the atheism and infidelity of the French Revolution. But in 1811 Rozer Collard introduced what was called the Scotch Philosophy and it was continued by other less known names until 1826, when, as I have said, Cousin, having returned from his banishment to Germany on account of political difficulties, began his lectures.

With Cousin there is no fundamental principle or fact as a starting-point. His method is one of eclecticism. It consists in reviewing all systems, adopting no one system as a whole, but rather selecting and accepting whatever one may find to his liking or "that is true," as he thinks. And the only ultimate test is intuition, or rather insight, which, however, Cousin calls reason, or rather "the reason.'

This he says, "though it is in us, is not ours nor ourselves, nor under our control—it is God within us." (See below.) He regards it as infallible. Error comes only from reason*ing*, and not from reason or mere immediate intuition or insight.

Cousin claims to be, to a large extent, a disciple of Reid. He denies very emphatically that there are any ideas in the mind as a means or a part of knowledge. Thus (Lect. XXII) he says, "If by ideas be understood something real, that exists independently of words, I say then there are absolutely no ideas. There is nothing real except things and the mind with its operations." Again, "now we reject the doctrine of innate * * * * ideas; and for this very simple reason, that there are, in nature, neither propositions nor ideas. What is there in nature? Besides bodies there is nothing except minds, and among these, that which we are, which conceives and knows directly things, minds and bodies. And in the order of mind what is there innate? Nothing but the mind itself, the understanding, the faculty of knowing." Once more, "there are then, indeed, no innate ideas really existing."

These statements all occur in the same Lecture (Lect. XXII, 2d series, Chap. vii, in Henry's Psychology of Cousin). But the thought occurs elsewhere. Thus in Lect. V, 2d series, he says: "if we reject Nominalism must we admit that ideas are things that exist like all else? Not at all. Ideas are not things—are not beings. Who has seen ideas? Who has touched them? If, as I very much doubt, Realists have intended to speak of the external existence of ideas, they have fallen into the most evident absurdity. I am ready to admit that ideas are only conceptions of reasons."

This would seem to be sufficiently explicit and emphatic. In this Cousin agrees with Aristotle and Reid. But it leads to a "realism" quite the reverse of that of the philosophers of the Middle Ages. They held that ideas, which Aristotle and Reid thus concur in calling mere "fictions" and which Cousin says have "no existence in the domain of reality and among the substantial things of the universe in which we have our being, are real, if not, indeed, the only real things in the universe, as some of the early followers of Plato held, and, indeed, many modern followers of Hegel profess to hold. But our Realism is the reality of things that exist.

But Cousin neglects and wholly fails to appreciate the second great class of the elements of ideas recognized and described by Locke, those derived from "reflection" or consciousness, and proceeds to criticise and treat this system as if he had held and taught that *all* the elements of our ideas—our knowledge—come into the mind by sense-perception alone. Thus (Lect. XVII) he says, "the first faculty of the mind, then, Reflection or Consciousness [Locke had at first called it Reflection], adds nothing to what is given by sensation; it merely takes knowledge of it. In retention, contemplation only continues the perception, when faded, the memory recalls it. Discernment separates, composition reunites, these perceptions; abstraction seizes their most general character. But still the materials are always, in the last analysis, ideas of sensation due to perception. Our faculties add nothing to the knowledge which they draw from them, but that of their own existence and of their actions."

This might seem like a recognition of Locke's second class; but if it be so it is wholly inadequate. Cousin makes no further use of it, and shows, as I think most conclusively, that he did not fully understand it or at all appreciate its importance. He proceeds, in fact, as if it had never been mentioned by Locke.

Cousin's main object in these lectures is to show that Locke's "system" is faulty in that it does not recognize any innate, or rather *a priori*, ideas, as he prefers to call them. He seems to recognize the inference that had been drawn from that system as it was understood by the sceptics and rationalists in England and Scotland, as well as the "infidels" in France, as logically inevitable from that system, and if logically inevitable then by necessary inference they had rightly understood and interpreted that system.

§ 4. Cousin professes to accept Locke's challenge to appeal to facts, and takes the seven words that Locke himself had chosen (see last Lecture), time and space, substance and identity, cause, God, and good and evil.

Before we proceed to examine Cousin's remarks on these tests let us make sure of our ground and see, carefully what we are about. And I think it will be found that, as Locke had neglected to unfold and develope his theory as fully as the case required, and more especially with regard to the second class, so Cousin has failed to see and appreciate one of the fundamental points—which is perhaps rather assumed than explicitly stated and fully elaborated by Locke.

Every concrete idea—that is, every idea *of a thing* which has or can have a name, a name denoting it must be, in the sense we have used the word, a complex idea made up of several elements. If now we analyze that idea we get the elements which can always be used as adjectives when we are speaking of the object, and we may get in this way, too—that is by analysis—*all* that we can say or affirm of any object whatever. This paper is "white," "hard," "flexible," "made of linen," "made at the mills in Lancaster," and so on. These are the "elements" of my idea of this piece of paper, and constitute what I know of it. And they, when fully enumerated, constitute *all* that I know of it, all that I can say about it, even by way of fancy or of conjecture.

Now it must be carefully noted that of these seven words, proposed by Locke and accepted by Cousin, *every one of them, except perhaps one*—cause—*stands for a complex idea*, an idea of a thing, and not for a simple or elementary idea of a property or mode, so that, if with that exception he should succeed in showing that we have the ideas of the things which are denoted by them *a priori*, that is before any actual cognition of the things themselves, it would be no refutation of Locke's theory.

In a most important sense all ideas *of things which we have not actually seen and observed for ourselves and personally* are *a priori*. But then such ideas do not necessarily, nor do they at all, in fact, contain any element or elementary ideas that were not in the mind before, and which had not been derived, as Locke has maintained, by observation in one or the other of its twofold forms—sense-perception and consciousness.

For example, I have never been in Egypt, or seen the Nile and the Pyramids. But I have pretty definite ideas of them, and these ideas are all *a priori* to me in a most important sense. I have them *before* seeing the objects; they are in one sense, therefore, factitious, in Descartes' classification. But they are all complex ideas and made up of elements of ideas that I have gained in acts of actual observation of things that I have seen. No one of the elements is *a priori* or gained otherwise than by actual observation, of real objects to and by the senses, as maintained by Locke in his Essay.

We will take, together, first the two of Cousin's examples, time and space, for he treats them very much alike.

It is a pertinent question at the outset whether they are realities in nature or only fictions. This is a grave question. Doubtless we have never cognized them, and if the decision be that they are mere fictions, like Cousin's hippogriffs, the case would seem to be settled.

But suppose they are realities, as Cousin assumes, the question is what do we predicate of them? Of what elementary ideas are our ideas of them composed? Is space "extended?" So is this proper which I can see. Does time "endure?" So do the hills and mountains around one, as well as the pain I feel, or the love I have to my fellow men. And these elements of the two ideas, that of space and that of time, are derived, the one from sight or feeling or both, and the other from any consciousness of the state and feeling of my own mind.

Cousin ascribes to them the three properties. They are "infinite," "without form," and "of necessary existence." The first are obvious, but they are negative terms, they do not ascribe *to*, but they rather ablate *from* their objects, any property whatever.

But as to necessary existence, Cousin says, "I can suppose or imagine this book or any other object annihilated, so as not to be in existence at all. But I cannot imagine or suppose space to be annihilated or non-existent."

But suppose space is not anything, is nothing. In that case we cannot imagine or even suppose it to be annihilated, for to annihilate nothing is not to annihilate at all.

Let us suppose then that this book and all other things are annihilated; what would be left? Simply space—blank, empty space. Space then is not a thing, for by the very supposition all *things* have been annihilated and yet space is left.

But do we say space surrounds all things? So does the air *surround* all things that are in it. The idea of surrounding, therefore, comes from observation. Do we say that time outlasts all things? So does the day "outlast" the passing hours.

Let us now pass to the next two of Cousin's examples, substance and identity.

The word substance is used in several different senses. But then it means a something that has of itself no properties, while it underlies all of the properties that we ascribe to an object. But the theory is a survival of the Realism which Cousin professes to have repudiated. Thus, if we take Descartes' illustration, it assumes that the properties are, to the underlying substance, very much as a man's hat and coat are to his body, which is covered out of sight by them. But this makes the properties to be as really substantial as the substance itself—the hat and coat as substantial as the head and shoulders which they cover.

Cousin also assumes, with most all others, as an heirloom of Realism, that what we see, the *immediate* object of sight, is not the thing itself, but the properties of the object, its color, form, etc., and not the object itself. And he is very emphatic, as usual, in saying that which the senses give you are solidity, color, form, etc. Do men believe that these qualities are merely in the air? Or do not men believe that they are qualities of something really existing and which, because it really exists, is solid, etc." Precisely, but do you perceive the solidity or the solid substance? To assume that we perceive the solidity is to make of the solidity a quality or property, a substance for the occasion at least. This fallacy underlies his whole argument.

"Identity," I apprehend, is not an elementary idea at all, though denoted by an abstract term. It implies that what appears at first to be two objects, observed at different times or places, are one and the same. I think the word expresses a judgment that is reached by seeing some one object as it passes through the various changes or conditions.

Cousin applies it chiefly to the person, the substantial mind or soul that endures, or continues the same during several successive states or stages of thought and feeling. But the idea of the soul is, according to Locke, and Cousin does not differ from him in this respect, obtained by consciousness of our own mental states and acts. And the identity may be the result of continued consciousness during the coming and going of thoughts and feelings. Thus we should get the idea of identity from natural observation of the soul itself, as it passes through its various states. But in other cases we affirm it as an act of judgment.

In regard to cause, Locke says expressly that we get the clearest idea of it, or of active power, from the mind itself, by our consciousness of volition and effort. We need not, therefore, pursue our remarks on this point any farther, and inquire whether by insight we could get the idea of cause as something different from and more than mere antecedence, from the phenomena of external nature. We may leave this as a question that need not be discussed in this place.

I pass then to the idea of "good and evil." Cousin maintains that good is something more and higher than mere pleasure, and I certainly shall not dissent from his view in this respect. Pleasure is a matter of consciousness, but it is not so with "goodness." Goodness, however, is a property which we ascribe to that which gives us pleasure. That which is good is, as Socrates said, *good for something* and in reference to an end, or else it is *good for nothing*. And whatever we call good at all we call good as a means to an end, though perhaps we may overlook the end for the moment and call it absolutely good, that is, good always in the result, and good in this respect without comparison or reference to anything else.

But even so the idea, the elementary idea, was obtained by comparison and reference to an end. Pleasure has reference to self, or to a person. Good has reference to something higher, so that which is good need not be pleasant for the present at least, and that which is pleasant now is not always good in the end. The difference results from the difference in the object with which the comparison is made, or to the end that is had in view.

§ 5. I come now to the last of the seven words, or ideas, "the infinite." But adhering to our method and our principles we actually ask "the infinite" what? Cousin certainly speaks of four objects at least, of which he would predicate the term "infinite;" they are "time," "space," God and "number."

But the word itself is negative in form, and neither denotes nor implies any property by which an object, whether mind or matter, can be cognized. To say that a thing is infinite is merely to express a judgment concerning it, and to say that it is *without* bounds or limits. The word ascribes to and predicates of the object nothing whatever.

Dropping all the other terms, however, and restricting our remarks to the One Infinite Being, the question arises how do we come to think at all of Him, and what attributes do we ascribe to Him? And the latter of the two questions is the only one that need concern us now.

The word denotes at all events a complex idea, the idea of a Being with various attributes. But what are these attributes? Confessedly not any one of the sensible properties of matter. As the old Greek philosopher said, "God sees all things and knows all things, but He does not breathe." He is all mind.

Now I do not know, and Cousin has not attempted to show, that we ascribe to Him anything that we are not conscious of in ourselves,—sin and infirmity, weakness and wickedness, alone excepted. He is as we say *omni*scient, we know some things. He is *omni*potent, we can do some things. He is *omni*present, we are present here and now, under the limitations of time and space and so on. We judge of Him and what He is by what we see of the works in nature, and in revelation which we ascribe to Him; just as we do of our fellow men by the acts they perform and the words which they speak. And we ascribe to Him as attributes whatever of thought, feeling and purpose they seem to indicate.

But with regard to number the case is somewhat different, as Cousin points out. Infinity in number is only a convenient fiction. There is no number that is actually infinite, it is only indefinite, so that to any number that exists something may be added as well as subtracted from it.

But infinity as we ascribe it to the attributes of God, is not, as Cousin well and pointedly says, of this kind. It cannot be reached by addition or multiplication. But how then? Cousin does not attempt to tell us. His *a priori* idea, *if he has one*, cannot be expressed in words, or at least he gives no word for it. (See last Lecture.)

The two words, as J. S. Mill has remarked, are different, and the difference is important. Both are applied in the common use of language to God. But we say, for example, of water that it is perfectly pure, or it's purity is perfect. So too we say of space that it is infinite. But we do not interchange these adjectives and call the purity of water, for example, infinite.

In speaking of the attributes of God, however, we often use both adjectives. His love, for example, we say is perfect, to indicate that it is unmixed with any other attribute in such a way as to render it less effective. And yet we say that it is infinite, to indicate that it extends to all things and all particulars.

To say thus of God, that his attributes of love and goodness are perfect, is to ascribe to them no property but such as we have got or can get an idea of from many other things. And as to the word "infinite" it is, as I have said, only an etymological compound. In and of itself it denotes no reality nor the property of any, that we have ever seen, whether by sense-perception, consciousness, or otherwise. Finiteness we know. But infinity we do not know, nor immediately anything that is infinite.

Our minds are finite. I know a few things and can think of but one or two things at a time. I can do something, but very little. Other minds resist me, natural objects resist me. I cannot sink into the ground, as I sometimes wish I might do. I cannot fly in the air as the birds do. But God, the Infinite Mind, is infinite in power and perfect in his attributes. If so, all thoughts must be present to His consciousness at one and the same time; that is, He is omniscient. He must be present in all places, without *extending* from one place to another as material objects do. Finite minds and finite things can have no power as against Him. Even in mathematics we can do nothing with the sign of infinity. When we come to that sign we are at the end of all possible operations. We can no longer either add or subtract, multiply or divide.

It has sometimes been proposed as a problem, "if an irresistible force encounters an immovable body what will be the result?" This may do for a witticism or a puzzle. But if there be an irresistible, that is an infinite, force there can be no immovable body, or if there is an immovable body there can be no irresistible, or infinite, force.

Doubtless the view of the Divine Being that is thus presented is somewhat anthropomorphitic. But I know of no idea or conception of Him that is not so. From the lowest idea that is entertained by the most degraded or most uneducated, up to the highest and most spiritual, something of this character always accompanies and modifies our idea of the Supreme Being.

One of the questions of our day with philosophers is with regard to "the personality of God." We begin with the idea of personality as derived from observation of our fellow men. As persons they are visible in bodily form as well as imperfect and defective in many respects. And when these philosophers deny the personality of God, what they mean to deny, and all they mean to deny, is for the most part only these peculiarities of men, visibility of form and imperfections of character. Of course in the last stage this denial of the personality of God denies His substantial existence as well—His possession and exercise of will power and purpose, as well as His agency or activity or cause.

But in all our affirmations concerning God there is no element of the idea, element of character, or attribute, which is not formed and furnished to us *in its elementary form* by the consciousness of our own mental acts or states. We are made in His image, and are "partakers of His nature," that is, His attributes.

I find, therefore, in Cousin's criticism nothing to raise or justify a doubt as to the correctness of Locke's theory, when taken in its full comprehension and fairly and fully understood. Cousin's great mistake, one of them, was the fact that he did not recognize the difference between the complex ideas of things and the elements out of which they are made.

There are two considerations, besides those already expressly stated, that seem to make Cousin's position untenable and Locke's impregnable.

The first is that if there were any *a priori* elements of ideas, any elements that had not been obtained by experience as Locke has defined it, we should and could have no words to express them.

Let us suppose, for example, a man is perfectly blind and has always been so. No effort we can make, no words or illustrations we can use can enable him to understand what the word "white" means or when to use it as a predicate to any noun, the name of anything whatever. He can come to understand the word, "get the idea of it," if we prefer that expression, only by seeing something that is white, and so of all the truly elementary ideas.

The second point is that if we had such ideas and could use the words that express them, they would be no proof of knowledge.

Suppose, for example, that one has the idea of whiteness, or any other color, and takes into his hands, in the dark where he cannot see it, any object, he, with all the ideas in his head could not tell what is the color of the object, if limited, as in that case he would be, to the mere sense of feeling. And so of all other elementary ideas.

Again, it is a serious fault with Cousin, as it was with Plato (Lect. IV), that he has given us no ultimate test of truth that is of any practical value. He refers to "the Reason which he insists and repeats (Lects. VI, VII, VIII, 1st series; Lects. V and VI, 2d series) is impersonal, in us, but not ours, of us, or in any way under our control." But he gives us no means and prescribes for us no way by which we can discriminate these *dicta* of "the Reason" from the mere creations of our own fancy. If a man only feels perfectly sure that anything is right, it is so—for him at least.

§ 6. But Cousin concurs in his general results with Reid. (Lect. XXII, Chap. VII, Henry.) He gives as the results of his methods:

(1) We know matter and mind, the world, the soul and God, otherwise than by ideas (in Locke's sense). (2) We know things directly, and without the means or medium of ideas, the mind is subject to certain conditions and limitation. But when these conditions are supplied or fulfilled, it enters into exercise and knows, for the sole reason that it is endowed with the faculty of knowing," or in short it knows because it can know and that is its nature.

I think, therefore, that Locke has "touched the bottom" of this question and given a solution that must remain among the posterities. Like Copernicus' theory of the motions of the heavenly bodies, Newton's law of gravitation, Dalton's doctrine with regard to the laws of chemical combination, Aristotle's dictum *de omni et nullo*, or Hegel's law of co-ordination and comprehension in a higher genus, or Leibnitz's and Cousin's law of causation as the foundation of all positive knowledge of any thing, or of all things that we know or can know anything about whatever.

I have insisted in this discussion that our inquiry must be limited to the elements of ideas. And I have given several reasons why there can be none that are either *innate* in Plato's sense, or in the sense of the Medieval Christian Realists, or *a priori* in Cousin's sense.

I give, in conclusion, once more, the elements of ideas cannot be defined. No one can tell what "whiteness" is. If you ask me what whiteness or any other strictly elementary part of a complex idea is, I cannot tell. I can only say that you must see something that is white and then you will know what the words mean. I can possibly tell you where or when you can see something that is of that color.

We can define and explain only the words that *express* complex ideas and *denote* things that may be known without being seen, and then only as they contain no elements of ideas that we have not already acquired.

It is in this way that we define the triangle, the circle and other mathematical figures, and reason from these definitions to all that we know of mathematics. We reason in this way also, only to a much more limited extent, from the nature of things in the natural science and metaphysics.

So, too, in this way we get very clear and distinct ideas of things we have never seen—mountains and rivers, cities and continents. Persons who have seen them describe them to us, and we construct the elements thus indicated into complex ideas of the objects, but only in case we have the elements of the ideas already in mind. But if we are called upon for any element of an idea that we have not got by actual observation, the case is hopeless. No *innate* or *a priori* process will be of any avail to us.

But does any one ask: Why not accept the doctrine of some innate or *a priori* ideas?

First of all, because there is no proof of any. It would, therefore, be to recognize an element of uncertainty, that is, facts of the existence of which we have no knowledge or proof as among the facts of nature that we have to account for and explain, and take into the "material" of our philosophy.

But in the next place it would be opening a boundless field for the play of fancy in all our speculations and allow a man to invent "facts" at will and to affirm and believe whatever he might take a fancy to affirm. If a man may invent his facts he can prove anything and can never be refuted or confuted in anything he may choose or profess to hold. We should, in fact, be opening the field and preparing the way for any quantity of the *dicta* of the philosophers like those of the Middle Ages, which we have seen to be so effective in their influence against nearly every step in the modern progress of science and discovery; it would, in fact, totally obliterate the distinction between fancy and reason for all the practical purposes, whether of life or of philosophy.

§ 7. But although we reject Cousin's theory of innate *a priori* elements of knowledge we must give him the credit of having distinctly enunciated the fact or principle that lies at the very foundation of all knowledge; it is that all cognition and all knowledge rests ultimately on the principle of causation.

Although Locke had made the remark in passing that we get our best idea of force or cause from the consciousness of our own mental act in choosing, he yet attempts to account for our idea of cause by reference to the observed antecedence of events, facts and phenomena in the material world. This was accepted by Hume and the others, who were of an atheistic turn of mind, as final; and thus they denied any difference between the two—antecedence and causation. But Cousin not only shows that there is a difference—sometimes the cart before the horse, the wheelbarrow before the Irishman—and at any rate the ideas of the two are different, so that we may often predicate one when we must deny the other.

Nor is this all. He made this principle, that every effect must have or have had a cause, fundamental, or, rather, he recognized the fact that it is fundamental to all knowledge. We know external objects only as they act as causes in producing sensations in us. And the cause must always be adequate. If the sensation be of one kind, we call the object white, if of another, red, if of another, hard, etc., etc.

And so internally, though Cousin does not seem to have appreciated this application of his own principle. I am conscious of perceiving, remembering, reasoning, willing, choosing and putting forth effort and therefore the I, or *ego*, must be active as a cause, and if a cause, then, as Leibnitz has shown, a substance and not a mere property or mode. And if a substance and cause it must be adequate to the observed effects, it must be intelligent, capable of insight and spontaneity of action, or, as we say, free will, for in choice there is of necessity spontaneity as opposed to inertia.

Or to state this doctrine in another form, "We know things only by what they do" (1) to us or (2) to one another. Thus, take any material object, I know it, in the first place, by what it does to my organs of sense-perception. It does something to the cells that constitutes the retina of my eye, and I call it white, or if it does something different, I call it, perhaps, red or yellow. So of all the other organs of sense.

Then, in the next place, I know of it chemically, mechanically and even medicinally, by what it does to other beings and things—the way it acts on them, and I give it names for its properties in this relation as affinity, attraction, repulsion, etc.

So of the mind, I know it by what it does within me. Perhaps it is true that I know nothing of it, what it is and how it appears when it is not in action. But I know it by what it does and of it whatever it does. It perceives, imagines, remembers, reasons, and wills and I know it as doing these things just as I know the objects around me by what they do in acting on my sense-organs or on one another in the varied forms of the natural phenomena.

And, in the same way, applying this principle to the facts and phenomena of nature, we arrive at the idea and certainty of a First Cause, omnipotent, omniscient and omnipresent. And this He must be in order to be adequate to the production of the phenomena we ascribe to Him. This paper must be hard or I could not feel it; it must be of some color or I could not see it. That is, it must be as a cause adequate to the sensations by which I feel it to be hard or see it to be white, etc.

So with the First Cause. He must be omniscient, omnipotent and omnipresent to produce those phenomena in the material world in its present and past history, which we see and which we cannot ascribe to either man, animal or mere inert matter as their adequate cause.

Here then is our starting point. And we shall proceed, in what remains of this course of Lectures, to consider some of the efforts that have been made to build on this foundation, or rather on one and another of its parts taken as a whole. And I think we shall see that no one of them has succeeded in accepting the foundation as a whole, and that as a consequence they have arrived at very unsatisfactory results as the final outcome of their labors.

We must remember that Locke's starting point was that all the elements of our knowledge are derived from actual observation of real objects, and were of two kinds, the one obtained from the material world by sense-perception and the other obtained from the mind itself by consciousness.

The two movements last considered, those of Reid and Cousin, were both of them made in the interest of Christianity and Christian belief. Reid, as I have said, based his philosophy on the innate common sense of mankind. Cousin thought to base his efforts on the *a priori* ideas (he avoids the term innate) which, as he thought, enter into the knowledge and belief of all men, and thus furnish a foundation for religion and morality.

I now proceed to consider the developments from Locke's theory, or rather their misapprehension of it, in the other direction, in the interests of unbelief and agnosticism.

These philosophers, neglecting the doctrine that every act of cognition implies the reality of the thing cognized as indispensable to the act, and neglecting, also, or intentionally ignoring, as Comte and others have done, his second class of the elements of ideas, those derived from consciousness, we have a development of scepticism and uncertainty in regard to the objects of cognition by the senses, and of agnosticism in regard to all others.

August Comte, born in 1798, is known as the author of what is called Positiveism. He thought that there had been three distinct ages in the progress of human thought: *First*, the theistic, in which men ascribed all phenomena to God or to "gods many" with a mythology to explain all things. *Second*, a metaphysical age, in which men referred phenomena to laws and invisible "causes," denoted, for the most part, by abstract terms (which we may add is an outcome of Plato's theory of ideas and the Realism of the Middle Ages). The *third* age he claimed to have been inaugurated by himself. He accepted Locke's first principle, that all our elements of ideas are obtained by cognition of external things, expressly and professedly rejecting the elements of ideas that we get of the mind and by consciousness.

As a necessary consequence of this basis, he limited the word "knowledge" to what we get by sense-perception and which, therefore, pertains only to material things; all else being relegated to the realm of the "unknowable." By this means, agnosticism was not only justified, but it was made an inevitable necessity. This was Comte's third stage and, in his view, the last and the perfect stage.

But if we accept, with him, Locke's fundamental principle that all the elements of ideas are derived to the mind by actual cognition, and take into account the neglected half of the other principle, the ideas derived from consciousness, we enlarge the sphere of knowledge, in the strictest sense of the word, and we have what we know of mind as well as of matter, included in the word knowledge. And we have, as elements of our idea or knowledge of mind, such ideas as perception, consciousness, memory, insight, love and hate, will and effort, which make up the complex idea of mind and personality.

But even "knowledge" will not stop here. We have from things seen, knowledge of things unseen; and that, too, both in the material and in the spiritual world.

The planet Neptune, as is well known, was *proved* and known to exist before it had been seen by human eye. No one has ever seen an ultimate atom of matter; yet that atoms smaller than have ever been seen or can be seen, exist as certainly as matter itself, or any one of the things we see around us, cannot be denied.

Malebranche, as we have seen, being unable to understand how we perceive things that are in the material world, invented his theory of "seeing all things in God."

Liebnitz had invented the theory of monads and pre-established harmony, by which he thought to avoid the difficulty that arises from our being unable to understand how mind can act on matter or matter on mind. There was on his theory no interaction, or action and reaction, in the case; it was only an instance of two substances, or monads, acting in harmony and, at the same time, pre-established harmony, but not on each other.

Berkley experienced the same difficuity as Malebranche had done. He assumed or implied the reality of a human mind in man and a God in the universe Who is a Creator of all things. And he made a new suggestion as to the mode and nature of creation. But he denied the substantial existence of matter and of material things. Hence the witty saying of some wag, perhaps Butler:

> "If Berkeley says there is no matter,
> 'Tis no matter what Berkeley says."

But Hume (b. 1711) thought that the assumption of even a mind in man was unwarranted, and especially did he maintain that we have no right, on any grounds of philosophy, to affirm or assume the existence of God. What we know and all we know, he held, immediately, is our sensations or perceptions. The belief in anything else is mere assumption, and entirely unphilosophical. It is reported of him that having been asked by some one if he did not really believe that the objects around him on the table and the chairs really existed, he replied: "This is not a fair question; what I may believe as a man is one thing, and what I have a right to believe as a philosopher is quite another and a very different thing."

§ 8. But Comte is the founder of what is called "the Positive Philosophy" and, to some extent, what is better known in our day as Agnosticism.

In his view all things are in one of two states, one is a quiescent condition or mode and the other is an active state. "All considerations range themselves under the one or the other of these heads." If we regard them as mere inactive modes, we must, so far as mind and thought are concerned, determine the organic circumstances of the case, which makes it a question of mere "anatomy and physiology." If we regard them as active states, which he calls the "dynamic aspect," we have to study only "the exercise and results of the intellectual powers." "In short, looking at all scientific theories as so many great logical facts, it is only by the thorough observation of these facts that we can arrive at the knowledge of logical laws. *These being the only means of knowledge or intellectual* phenomena, the illusory psychology, which is the last phase of theology, is excluded. It pretends to discover the laws of the human mind by contemplating it in itself, that is, by separating it from causes and effects. Such an attempt, made in defiance of the physiological study of our intellectual organs and of the observation of rational methods of procedure, cannot succeed at this time or day. (Vol. I, p. 11, Martineau's Ed.) Again (p. 461) he says, "as far as this fundamental principle of interior observation is concerned it would certainly be superfluous to add anything to what I have already said about the absurdity of the supposition of a man seeing himself think."

Herbert Spencer follows Comte far enough in this respect to say that "a cognition of self, properly so called, is absolutely negatived by the laws of thought." If the object perceived is self, what is the subject that perceives? Or if it is the true self that thinks, what other self can it be that is thought of? Clearly, true cognition of self implies a state in which the knowing and the known are one. Subject and object are identified, which Mr. Mansel rightly holds to be the annihilation of both. (First Principles, p. 64.)

But somehow or other we do manage to "see ourselves think." This is another instance, even in our day, of the application of that philosophy, or method of argument, by which the "philosophers" of the day resisted or denied the law of the velocity of falling bodies, the pressure of the atmosphere and such like truths. But somehow we do see ourselves think. I see this table in the ordinary way, but I look into the mirror and I see myself; subject and object are here one and the same. Do men say it is by the reflection of the mirror? So it is in acts of mental reflection that we are able to see ourselves think.

But there need be no dispute or uncertainty about the matter. No one doubts or disputes the fact that we are conscious of our mental acts and states, perceiving, remembering, willing, etc. The only point is whether there is an *ego*, or self, a mind that thinks, a mind that performs mental acts, or "mentalizes," as it has been called. The question reduces itself, then, mainly to a question of words and names.

Or, perhaps, not quite that. Men of this school of philosophy very generally regard the word mind as an abstract term. They admit that we are conscious of or cognize thought and feeling, but do not immediately or directly see the mind that thinks.

But in sense-perception we have the same problem. On this theory what we see is the whiteness, etc., but not at all, or by any means, the substance that is white. We feel hardness, but not the substance that is hard, etc.

§ 9. This old delusion clings, with a wonderful tenacity, to the minds of our philosophers. In fact, there is no "substance" in the sense these men imply. That is, there is nothing *that is of itself without* *properties* underlying the properties we see. The supposition of the reality of such a substance makes the properties themselves to be substantial, the colors of an object, for example, as substantial as the paint we put on them.

Even so good a thinker as John Stuart Mill defines matter as only "the present possibility of sensation." (Ex. of Hamilton, Vol. I, p. 243.) And of mind he gives no better account than that "it is nothing but the series of our (?) sensations (p. 253). A series of feeling which is aware of itself as past and future" (p. 261).

But there can be no thought of properties or modes without thought of substance, nor of substance without properties or mode. We use the terms as we often do what we call "imaginaries" in mathematics as the square root of a minus quantity. We cannot get along with our discussions without using them. But everybody knows that there are and can be no such things in *rerum naturâ.* All men see and admit it, too, unless like Hume they feel justified, or at least required, to affirm and maintain, as *philosophers*, what, *as men*, they know to be untrue in fact and are constantly obliged to act upon.

No. Where there are properties there is substance, and where there are actions, whether material or mental, there is an active agent or cause. Of this all men are satisfied, as men, and act accordingly.

But, as philosophers, the doctrine must be seen to be undeniable the moment our thoughts have been concentrated upon it.

An act of consciousness implies a conscious mind, and thus the elements of our knowledge of mind or self, lie at the foundation of all knowledge, at the basis of every assertion or affirmation we can make.

I say, for example, this paper is white. But how do I know that it is white, or that I see it at all? It is only because I know, that is, am conscious, that I see it. There could be no knowledge of the object without knowledge of the act of perceiving it. We cannot go back of that fact, or deeper into the subject. Hence, without consciousness of the mental act of perceiving it, we could not make any affirmation with regard to, or have any knowledge of, the object perceived.

Is is quite possible that these philosophers, under the pressure of this argument, might say that we are, indeed, conscious of the *acts* of perceiving, etc., but not of the mind itself, and have no cognition of knowledge of it.

But here is the old fallacy, a survival of the scholastic philosophy, which is, perhaps, an outgrowth of Plato's theory of ideas. The fact is we do not perceive properties or modes at all, but subtances, in this, that or some other mode. We do not see the whiteness of the paper, but the paper white. In the common use of words we say, indeed, that we are conscious of thinking, feeling, etc. But there must be something, an underlying substance, that thinks and feels.

Perhaps, I ought to say a little more definitely what we mean by the word substance in this connection. We may say that we call that a substance which we can imagine or conceive to exist by itself, and even to exist if there were no other thing in existence. Thus, I can imagine, or suppose, this table to exist and to continue to exist if *all other* things were annihilated so that there would be nothing else in existence. But I cannot imagine, or even suppose, its whiteness, or solidity, to exist except as there is something substantial that is white or solid.

It is easy to see what is the real diffculty with these men. They are expecting what is impossible, namely, that they shall be able to *see* the mind, that is, see it literally, as they do external objects, in these acts of perception, reasoning, willing, etc., just as we see the lamp when it gives light or the paper when it receives the ink I am putting upon it. What they want and expect is, as Tyndall expressed it, to "*visualize*" the mind in order to cognize it in these acts and states. But the mind is not visible nor can it be "visualized."

But most assuredly we are not justified in denying its reality on that account. Look upon the trees in yonder grove; you see that the wind blows upon them; but the wind itself you cannot see, you cannot "*visualize*" it. But it is there and it "bloweth where it listeth," nevertheless.

I often think of the invisible things, that is, immaterial things, as being in relation to us much as all the objects around us would be to a man who is perfectly blind and who, moreover, has no tactile sense by which he can feel things that he cannot see with his eyes or touch with his hands or other parts of his body. He could hear the sounds they make and smell the odors they emit and float on the air. But he could neither see nor feel them; he could not "visualize" them at all. Nor in the ordinary sense of the words, could he form any idea of them whatever. But he would know that they are real and are around him. He would know them by what they do to him, the sensations they produce in him, and the thoughts he has about them in consequence of these actions on such organs of sense as he happens to possess. And they would be none the less real to him because he could not see or "visualize" them.

§ 10. Sir William Hamilton must be included among those that have followed in the wake of these misapprehendens of Locke, as must also the two Mills, father and son, James and John Stuart.

The name of Hamilton furnishes one of those cases in which a man dashes into the atmosphere of philosophy like a meteor, but shines after a while with a decreasing light. I think that while everybody has the very highest respect for the character and motives of Sir William Hamilton, the estimate of his work in philosophy is on the decline. Born two years before the great Frenchman, Comte (1788), he cannot be supposed to have known much, if anything of his position, or the character of the "Positive Philosophy," or to have been influenced by it any further than it was already "in the air," so to speak, that is, was current in an unrecognized form and influence in the thoughts of the age.

Sir William Hamilton must be reckoned among those very learned men who have read everything and knows all that can be obtained from books, or that books can teach them. But he seems to have seldom, if ever, looked beyond mere words to things. And consequently he has been most severely censured for misapprehending his authorities, and either making them utter what is pure nonsense or ascribing to them opinions that are as far remote as possible from what they really intended to say. (See Sterling's "*Secret of Hegel.*")

How to hold to a belief in the reality of external things, consistently with any sound principles of philosophy that should furnish the ground and first principles of all knowledge, was the great question. Comte, as we have seen, would not admit it to be—probably from the peculiar constitution of his mind did not see or feel that it was—any question at all. He assumed it as a first principle and not only virtually, but professedly, rejected all principles of metaphysics and metaphysics itself as groundless and absurd.

But Hamilton took a different course. He enlarged the idea of consciousness, and made it to be a "special faculty" whose function it is to cognize the states and acts of the mind and the mind itself, as it is the function of the eye in these states and acts to cognize the colors and forms of objects, or of the ear to cognize their sounds. But it was, rather, in his estimation, a *genus* including, in fact, all the forms and classes of mental activity.

Thus, in accordance with his view, we should not say that consciousness is the faculty of knowing the acts or states of our minds, just as perception is the faculty or process of knowing or perceiving actual objects around us, and memory is the faculty of knowing or recalling past facts and states of our minds; but consciousness, in his view, is "the sum total of our mental states and acts" of the mind, and is, in fact, "the genus of which acts of perception, memory, imagination, reasoning, etc., are but the co-ordinate species."

It is undoubtedly true that we do sometimes use the word in that sense. But it is not the usual meaning or scope of the word, nor has his suggestion been generally received. In fact it was seen, almost at once, that it would not remove the difficulty altogether and could at most only change its place and form in the position it should occupy in our discussion.

But Sir William thought otherwise and announced the result of his new method very emphatically. Thus, in his article on "the *Philosophy of Common Sense*," he says, "in the act of sensible perception I am conscious of two things, of *myself* as the *perceiving subject* and of an *external reality* in relation with myself as the *object perceived*." And again, in "*the Philosophy of Perception*," he says, "the assertion that we can be conscious of an act of knowledge without being conscious of its object, is virtually suicidal. . . If a relation connot be comprehended in one of its terms, we cannot be conscious of the operation without being conscious of the object to which it exists only as correlative."

Here it is to be noted that Sir William uses the word "conscious" in its ordinary sense and not in the one to which he has proposed to limit it.

In the next place he has clearly mistaken what is actually *contained in the act* of perception, so to speak of it, and a condition external to the act itself, without which it could not occur. For example, I could not write these Lectures without something to write them on. But yet nobody supposes, or is in danger of mistaking, the paper for a part of the act itself.

But Hamilton's suggestion is faulty in another way. It would confound acts of consciousness that are indisputable. with those that are not so. I cannot doubt that I perceive, for example, but there are cases of false perception in which, so far as mere consciousness is concerned, the act is complete and undistinguishable from other acts of perception, when in fact there is no real object perceived.

This is not the place to show that there must be acts of true perception in which the object is there and really perceived, and that they are not all like the fancied perceptions in a dream. But that point we shall reach by-and-by, at a further state of progress in our Lectures and under another head.

Hamilton has chiefly in mind, undoubtedly, the scepticism of Malebranche and Berkley and Hume with regard to the substantial reality, if not to the very existence, of external things. He saw no other way to meet it or to obviate their difficulties. We shall see in our next Lecture how Fichte, following, in one sense at least, Kant, encountered the same difficulty and ran into substantially the same form of scepticism with regard to external things. In this view they are like the images in our dreams or the objects we think we see in cases of false perceptions or hallucination.

We have thus the act of perception as a matter of consciousness, which no one ever does or can deny; then, we have the fact or law that no such act of true perception can occur without the reality of the perceived object.

Hamilton agreed with the current of speculation that was setting in in that direction, and ignored or, as in his case, expressly rejected, the second class of elementary ideas as indicated by Locke—those derived from consciousness.

After reciting at some length, as was his custom in most cases, the doctrines and opinions that had been held on that subject, *as he understood them*, beginning with Plato, he referred especially to the form of statement in which Locke's system had been introduced into France by Condillac and expounded by Diderot and Condorcet, namely, that Locke had stated and proved that all our ideas are compounded of sensations, and in regard to the exceptions to this view of Locke's system that had been taken, especially by Reid and Stewart, he says: "On these observations [of Reid and Stewart] I must remark that they do not at all satisfy me; and I cannot but regard Locke and Gassendi as actually on a par, and both as deriving all our knowledge from experience." By which he meant the experience of the senses, or sensation, for he adds: "In the first place, I cannot concur with Mr. Stewart in allowing any weight to Locke's distinction of Reflection or self-consciousness as a second source of knowledge" . . "And if this be the case, it follows that the formal reduction by Condillac of Reflection to Sensation, is only a consequent following out of the principles of the doctrine itself" (p. 406).

But it is time to pause and consider what these philosophers of the French school, and Hamilton who agrees with them in this, intended to do with Locke's second source of ideas. Did they mean to deny that we are conscious of perception, memory, etc.? Not at all. But their mistake, or, rather, the conclusion at which they arrived, resulted from two errors or faults.

In the first place, they did not take and use the word idea in so comprehensive a sense as Locke had done. He defined it to be that with which the mind is occupied when it thinks. Consequently it might be the mind itself, or any mere property, or object, or state, or act of the mind itself.

In the next place they failed to see and appreciate what Locke means by his ideas of the second class. And for this Locke, it must be admitted, is partly to blame himself. His mind was so entirely fixed upon the other direction in which the discussion should be pursued that he did not give to this part of his subject so much of an exposition, development and illustration, as he did the other, and as, we may add, the importance of the subject demanded of him.

I think it must be manifest from this review that Hamilton's *system* is about as atheistic or agnostic as that of either Hume or Comte. I say his system, because he professed to provide against the scepticism in regard to material things, as against Malebranche, Berkeley and Fichte, by making the object perceived a matter of consciousness. And in regard to the existence and attributes of God, he and his followers excluded all ideas of Him from the sphere of knowledge and left them to depend upon and be derived from Revelation. (Mansel's *Limits of Religious Thought*, Lect. II.)

I will close this Lecture with a consideration of two great phases of the theories of knowledge which the discussions and developments from this misapprehension and misuse of Locke's system have made quite prominent in this age. The one is called "*Agnosticism*" and the other "*the Relativity of Knowledge*."

§ 11. Agnosticism, as we have seen, comes from (1) neglecting the second class of the elements of ideas as Locke described them and (2) from limiting the use of the word "knowledge" to what we know by sense-perception alone.

I do not propose to discuss the views of these philosophers in detail. Most of their opinions may be true, as I suppose to be the case with all other systems of philosophy; they are not all and altogether wrong. In fact, most of their statements are true. The great evil consists in the fact that they have in them some one seminal or germinal principle, that brings forth evil fruit; in other words, some one principle from which logic will make deductions, and history will develop results that are wrong, injurious, and even apparently absurd. Common sense, however, imposes its restraints and compels men to believe and speak of a mind in man as though they believed it.

Thus Herbert Spencer says, speaking of the phenomena of mental action, "Whence may be drawn the inference that it is held" (the existence of mind in man) "by thinkers, as well as by the vulgar, to be beyond all facts unquestionable." . . . "Shall we say that they" (these phenomena) "are the affections of something called mind, which, as being the subject of them, is the real *ego*? If we say this we manifestly imply that the *ego* is an entity." And then, after examining the suggestions and theories for denying the existence of a mind in each one of the human beings that make up our race, he proposes several inquiries and then adds, "Unless he can give a satisfactory answer to these queries, which he cannot, he must abandon his conclusions, and must admit the reality of the individual mind. (*First Principles*, § 20.)

And Huxley has said, "we know more of mind than we do of body, the immaterial world is a firmer reality than the material." (*Sensation and Sensiferous Organs.*) Huxley, however, believes in what he calls "the relativity" of knowledge.

But, if Locke's theory be true, we have a knowledge of mind as well founded and as certain in its teachings as the knowledge of the material world is or can be. Nay, and for the reason that both Spencer and Huxley give, more certain than our knowledge of material things.

It may be, and I am inclined to think that it is so, that the recently discovered and not yet fully appreciated phenomena of what is called "reflex action" will call for quite an extensive reconstruction of our "Mental Philosophy." But so did the suggestion of Copernicus, and the discovery of Newton, call for an entire reconstruction of astronomy. The old theories of Phlogiston and latent heat have passed away. Dalton's law is accepted and chemistry has become quite a different thing from what it was before the days of Tachenius and Boyle.

And so the more recent discoveries in what used to be regarded as Psychology may entirely revolutionize the science. But it is a science, nevertheless, and based on observed facts no less than Chemistry and Astronomy.

It is quite possible that Comte had something of this kind in view when he made the sweeping assertions already quoted above. It is quite certain that Spencer has had the phenomena of reflex action in view when he made his assertion. And Huxley has written an essay to prove that all of what we have hitherto regarded as *mental* action is only reflex action of the nerve centers.

But even reflex action, as seen in man at least, cannot be all of it interpreted, except by the consciousness of what takes place in the mind itself.

Nor do these agnostics deny the existence of God; they simply ignore Him and relegate all thoughts of him to the domain of "the unknowable." And let us be sure to keep this fact *always* in mind. What they hold and all that their theory of knowledge requires them to hold, is that God and the mind of man are not visible and tangible, like the objects of the natural sciences. John Stuart Mill holds and teaches in his posthumous works, that the existence of God, though not an absolute certainty, like the truths of mathematics, is, nevertheless, as certain, if not more so, than any one of the truths obtained in the Natural Sciences by the means of induction. And Herbert Spencer, by the application of Hegel's law of co-ordination, though he probably did not know it was Hegel's, to Mansel's reasoning, has proved by the most rigorous demonstration, that there must be in the universe a Being who is infinite and absolute so far as being dependent upon any other being or anything else for His existence is concerned (p. 88). Spencer also shows (p. 99) that this power is omnipresent. In p. 280 he claims to show that He is the only Force in the universe, so that heat, light, chemical affinity, etc., are but modes of His action in nature; and, finally, Spencer speaks of Him as producing in us certain beliefs and opinions which it is our highest wisdom and duty to accept as from Him and act upon them accordingly (p. 123, § 34.)

Tyndall says (Frag. p. 355), "the world will have a religion of some kind. We cannot read history with open eyes, or study human nature to its depths, and fail to discover such a requirement. Man never has been and never will be satisfied with the operations and products of understanding alone (knowledge, as these men call it), hence, physical science cannot answer all the demands of his nature." And in another place (p. 366) he says, "When I attempt to give to the Power which I see manifested in the universe, an objective form (to "visualize" it), personal or otherwise, it slips away from me, declining all intellectual manipulation. I dare not, save practically, use the pronoun "He" regarding it; I dare not call it Mind; I refuse to call it even Cause." That is, we cannot imagine it as a visible object, personal or otherwise, handle (manipulate it is his expression), nor visualize it. It escapes all such efforts and "remains a mystery still and overshadows" him. But yet the theory that He controls events and may even change phenomena in answer to the prayers of men, is in his opinion a "perfectly legitimate one" for men to hold and act upon (p. 468).

Now all this, the Agnostics hold, is not knowledge. And if not, is it the something that is higher and better—above all knowledge? Will he have us call it faith? Even so, on his own theory, it is not only higher and more elevating than what he calls knowledge, but more absolutely certain as well.

§ 12. Our remaining topic is "relativity of knowledge," as already intimated. I think that Sir William Hamilton first introduced this expression and gave full exposition and sway to the doctrine. But Herbert Spencer accepts it, and its consideration occupies the fourth chapter of the first part of his "*First Principles of Knowledge*."

This doctrine, taken in its fullest extent, would take from all knowledge the elements of certainty. Even self-evident axioms would not remain and serve as a basis to stand upon. Not even the axiom "I think, therefore, I am," would remain to us.

Knowledge consists, not only of ideas of things, but also of the relations that exist between the things, that is, the objects represented by the ideas.

The *properties* of objects considered as elements of knowledge may be referred to *four* classes: (1) The *objective* properties, such as color, form, etc; (2) the *subjective* properties, which are indicated by such terms as beautiful, horrible, frightful, etc.; (3) the *relative* properties, which indicate the relations of objects one to another, as affinity, cohesion, gravity, etc., and (4) what we may call the *metaphysical* properties, that are seen to exist only as a result of insight or reasoning, as inertia, infinite diversibility, etc.

But the *relations* of objects that make up our knowledge may be referred to three classes: (1) relations of the substance to its properties and modes, as when we say the paper is white, or hard, or smooth, or flexible; (2) the relation of the perceived object to the perceiving subject, as when I say this is beautiful (to me) or this is white (as it appears to me), and (3) the relations of objects to one another, as when we say, "all objects attract all others in proportion to their quantity of matter, and inversely as the square of their distance.

In this view all knowledge is, in a sense, relative; that is, it is a knowledge of the relations of things one to another and of the objects substantially considered in relation to their properties, modes and states. If this is what is meant by the Relativity of Knowledge, then all knowledge is relative, or relativity is an attribute or characteristic that attends every assertion we can make. But in this case relativity implies no degree or kind of uncertainty.

There is, however, another kind of "relativity" which affects a certain part of our knowledge, and this kind of relativity does give to that part a degree or kind of uncertainty which no means at our command will entirely obviate. And it seems to me not unlikely that our philosophers, having fixed their attention on this part of our knowledge, have, by a too hasty generalization, affirmed it as a characteristic of the whole. Or it is possible that they, having eliminated by their theory of the origin of our ideas, the nature of what have been regarded as axioms of absolute truth, have left nothing which, in their estimation, ought to be called knowledge to which this characteristic of relativity, with its inseparable accompaniment of uncertainty, does not pertain.

But even then I think I shall be able to show that there is, in fact, one class of our ideas, a subdivision of even those ideas which they recognize as making up our knowledge, which is exempt from the fault of uncertainty which they predicate of all. It is a part of the first class of properties just named.

Sensations, as we know, are states of body or of mind (and it makes no difference which, now), produced within us by external objects through our organs of sense as means. Now it is known to everybody that a change in the object will produce a change in the sensation which it produces and so in the appearance of the object itself, and thus in our idea of it. This piece of paper might, though remaining the same piece of paper, be changed in color so as to be red or black, instead of white, and the sensation produced and the idea of it in my mind would be changed accordingly.

But it is not so generally known and considered that a change in the organ of vision, that is, the eye, might produce the same effect in our minds, or upon the idea of the object that is supposed to be in the mind.

We have a good illustration of this fact in the case of our sensations of temperature. Let two persons come into the same room, the one shaking with a chill and the other burning with a fever, and the air of the room will feel cold to the one, while it will seem to be altogether too warm to the other.

What, then, is temperature? It is only a relation between us and things around us. What is cold to one person and under one set of circumstances, is hot or, at least, too warm to another or to the same person under different circumstances.

Now it has been assumed and asserted that this element of "relativity" pertains to all our knowledge. But I think I can show that even within the domain of the knowledge acquired by sense-perception, there are exceptions to this general rule, and very important exceptions.

Take, first, the individuality of objects. There are two pieces of paper on the table before me. They are absolutely two and not one, and no change in my organs of vision can make them either to be or to seem to be only one and the same object, except by a case of actual false perception.

Or, again, this paper is rectangular; this form is absolute, the same to all persons who can see it with their eyes or feel it with their hands. And here, too, no change in the condition of the organs by which we perceive it can make it seem of another shape, as round, oval, or triangular. Its form is absolute.

Hence, the reality of all objects that we see in true perception, as opposed to false perception, is a necessary truth. Their individuality, their form, and their number are not relative.

We may see the difference between the perceptions of form and of color and most of the other properties of objects in another way and by a different statement of the facts in the case. The color of an object depends on the *quality* of the nerve cells in the tissue of the organ of sight which we call the retina of the eye, and any change of their quality would effect a change in the sensation which is produced by the object, so that it would appear to be of a different color.

But in the case of the form of objects, that does not depend upon this quality at all, but upon *their position* in relation to one another and, of course, no change can be effected in that without destruction of the tissue and sight altogether. If the position of the cells is such that the object appears round or square, that is, forms a round or square image on the retina of the eye, the appearance of the object will be in accordance, whatever may be its color and notwithstanding any change in its color.

I think we have a good illustration of this fact in what is now pretty well known as color blindness. It is doubtless a result of some fault in the nerve tissues; but in these cases there is no fault or defect in the matter of the perception of form; the forms of the objects we perceive. These color-blind people see things distinctly, as distinctly as we do, and they have no uncertainty and indistinctness in regard to the forms of objects. And this holds true of all the grades and degrees of color-blindness.

Form is, undoubtedly, in most respects an elementary idea. But in one respect, at least, it differs from all of the other elements of our ideas: it is, or can be, derived from either of two or more of the organs of sense; color, for example, by the eye, sound by the ear, odor by the nose; but the idea of form is obtained by both the eye and the hand, or the organ of touch. Hence there is nobody who has it not by one or the other of these means, and it is, in fact, the same to both of these organs and the same also to all persons, with no element of relativity in the case.

But the knowledge we get of objects is not all derived from, or dependent upon, the way they act on us. It depends, to a large extent, on the way they act on one another. That branch of our knowledge which we call Chemistry is derived from our observation of the way in which the objects in nature act on one another. So in Physics and Astronomy. It is not merely the primary ideas that we get from seeing them and their action on sense-organs, but, rather, their actions on one another, that make up our knowledge of them. And these, though indicating their relations to one another, are not relative to us.

And it is worthy of special note that nearly all, perhaps all, of the classifications on which our Natural Sciences depend, while they imply the individuality of their objects, are actually based on the form of the objects as wholes, or of their parts and organs considered as parts of them as wholes, or the relative properties just referred to. In Chemistry and Botany I believe that the men of science do rely somewhat on color and odor. The Chemist recognizes ammonia, sulphur, bromine, and some other elements by their odor. But after all, the forms and the modes of their action one on another are the main basis of the classifications that are generally made and accepted and on which the Sciences are founded. And these are not relative; they are the same for all persons, at all times and under all conditions, so long as the things themselves last and are in the same relations to one another.

But we can try another test. Nobody can tell what whiteness, for example, is; there can be no definition of it that will give its exact differentia. It is a color, and that is its genus, or essentia; but its differentia, *as among its observed properties*, no one can give. He that has seen it, or rather something that is white, knows what the *word* means, but what the *thing* is, no one can tell; it is purely and wholly relative.

But with regard to form it is quite otherwise. We know and can tell what roundness and squareness are. We can define the geometrical figures precisely, with both essentia and differentia. And we can so define and explain them that any one who has never seen a round or square object, if, indeed, there is or could be such a person, will know exactly what they are, or, rather, what their form is, if only he has the senses of sight and feeling, or either one of them. There is no relativity about the form of objects.

We have, then, the axioms, or self-evident truths, the first principles of all knowledge, that are absolutely true. There is no relativity about them, in the sense of the word we are now considering. The one*ness*, the two*ness* of objects and all the laws of number; the straightness of the line, the roundness of the object, or the squareness of the figure, and all the truths of Geometry and Arithmetic, are absolute; they are the same for all persons and all places, now and here, heretofore and hereafter; as true in heaven and for all time, as they are now and for us inhabitants of this transient and changeable earth.

And these axioms enter into and underlie all branches and departments of knowledge. What we see is seen, and to be seen it must be substantial, or a real object and not a mere mode of an object, although we cannot see it except as it is in one or another of its possible modes. What is inert cannot move, except as it is acted upon and moved by something else. Mere analysis cannot destroy an element, nor can mere synthesis create one. Every effect must have had an adequate cause.

These axioms and such like axioms, as well as the principles of number and form, Arithmetic and Geometry, underlie and enter into the composition of that knowledge which makes up all that we call the Sciences, whether we take the word in its broader or in its narrower and most restricted sense.

While, then, we must admit that there is an element of relativity, and so of uncertainty, running through all sciences that are based on sense-perception, we must not overlook or forget the fact that there is also an element of absolute truth that runs through them and is mixed up with the uncertain or relative part of them.

Nor must we forget that there is a whole field of knowledge—the mathematics, at least—in which there is no uncertainty, no relativity whatever.

Of course I am saying nothing of the uncertainty that attends the results and deductions of our reasoning, the fallacies in form and in diction to which we are all liable. But I am concerned only with the uncertainty, "the relativity," that arises from its two sources, the cases of false perception, and the fact that many of what we call the sensible properties of objects may appear different to different persons. And I think I have shown that there is a satisfactory basis for what may be called knowledge in the various departments of Science, and that whatever of relativity there may be in this department, it does not extend to mathematics, or to the great mass of moral and religious truths.

And so with the other great branch or department of knowledge beginning with Psychology. We may mistake the facts of consciousness one for another, may misunderstand them, misinterpret them, and misapply them. But they are real none the less on that account. There is no "relativity" about the fact of their existence. And there may be and is as much certainty in any of our conclusions from them, or theories concerning them, as there is in any of our theories or explanations of the facts and phenomena of nature.

LECTURE V.

KANT AND HEGEL.

The movement inaugurated by Locke took quite a different form in Germany from that which it took in France and England.

Kant, though of Scotch descent, was born in Germany, 1794, about fourteen years after Reid was born in Scotland and ninety-two years after Locke in England. They, both of them, entered the field of metaphysics for very much the same purpose, namely, to counteract the tendencies of what had been regarded as "Locke's system" to materialism, atheism, scepticism, and general unbelief.

But before I proceed to discuss this evolution of philosophy, I think it will be well to turn aside and consider one or two points in the philosophy or logic of language, which seem to have had a pretty direct bearing on this subject.

§ 1. All languages, I believe, that have a definite article at all, except the English, use this article before abstract and concrete nouns alike and with no difference in this respect. But in the English the article is not used before abstract nouns, except when they are followed by the preposition "of," or some clause which is equivalent to it, in the matter of limiting their meaning. Thus, when we say, "the whiteness," we expect something else to follow, as "the whiteness *of* snow," "the whiteness *of* the rose," or, "the whiteness which the tissues exhibit," etc.

But the French and German languages make no difference in this respect in their use of the article, and thus they would say, "*the* physiology is the science of," etc., whereas we should say, "physiology" [without using the article] "is the science." In fact, the French requires the article before all nouns, while the German is not quite so rigorous in this matter and allows more latitude of use.

Now, this use of the article, doubtless, originated when the difference between abstract terms, which we now recognise and see to be of vast importance, was not seen or appreciated, and the continued use of the article in this way tends to perpetuate the error of confounding the two classes of "realities," just as the continued use of language in speaking of heat and light perpetuates the belief that they are real entities, which may be sent, reflected, refracted, radiated, converted, and even changed, the one into the other.

We have a good illustration of the effect of this misuse of terms, as we must call it, in a matter that is intimately connected with our general subject. We are in the constant habit of speaking of "*the* imagination," "*the* reason," "*the* memory," "*the* will," etc., as though they were concrete things, the organs, faculties of the mind, as we call them. This use of abstract terms, with or without the article, is constantly obscuring the actual distinction there is between things which are substantial realities and real causes, and mere fictions which have no substantial reality, or real efficiency, or causation anywhere.

There is one other form of expression which, although it seems to be congenial to the French and German languages, is foreign to the genius of our own. It consists in the reflex form of the verb, instead of the passive. Thus, a writer on Chemistry says, "carbonic acid forms itself in the lungs," by the union of carbon and oxygen there. But this is not quite so bad as the German's account of the cause of his neighbor's death: "He *bit himself mit a rattlesnake.*"

I have in mind one or two other examples. When Cousin was in Germany and had been listening to some German metaphysics that was too obscure for him, with true French politeness he expressed his difficulty by saying, "this does not *express itself* with sufficient clearness for my apprehension." The thought was not in the Professor, not at all; only the thought did not express itself as it ought to have done. Even the matter-of-fact Montesquieu, in speaking of some social conditions and their influence on human society and life, says that under these circumstances, "a marriage will make itself," (*il se fait une marriage*). With us, marriages may sometimes be made unadvisedly and with most unfortunate results, but they are never considered as "making themselves." We do not hope or claim to get rid of the responsibility for them so easily or in that way.

Now, when such uses of language prevail, there will be a difficulty in understanding, merely from the words he uses, what the author really intends to say —a difficulty, at least, for us who are accustomed to our English usage in such cases.

And I think that this use of language has exerted its appropriate influence on the minds of the German Philosphers themselves and German thought in general. It has often led, as I think, to protracted and obscure discussions—very profound, as many persons think them—when, to our English mind and expressed in terms we are accustomed to in the matter-of-fact English language, there is really no question at all; or only a matter of fact which is obvious at sight, or on the merest statement of the question.

But in stating the views of such writers as Kant and Hegel there arises a peculiar difficulty. Not only has the German language difficulties peculiarly its own, but these authors appear to have had less regard to the common thought and the common diction of mankind than most others. Besides reading them in the original, I have read at least three or four professed translations and at least thrice as many critics and expositions, no two of whom fully agree as to what is their real meaning, and no one of them that does not find fault with the rest.

Dr. Sterling, of Edinburg, has written two good-sized volumes on "the Secret of Hegel;" but he does not profess to see clearly what that "secret" really was, or if he did I fear that few of those who have read his volumes from end to end, as I have done, will feel very sure that they understand even what Dr. Sterling understood to be the real meaning of his author.

In view of this state of things I may be excused if I feel some distrust in regard to the interpretation which I have put upon their statements. But in all cases I have endeavored to look at the facts which these authors have had in mind, as the best means —after, of course, a fair knowledge of the language they used—of interpreting what they have said. Thus, I have always given what, in my opinion, they ought to have said, in view of these facts, whether it was their true meaning or not.

§ 2. But it is time to hasten on with our more immediate subject, German Metaphysics, and especially as taught by Kant and Hegel.

Kant, as I have already said, was born in Germany fourteen years after Reid was born in Scotland. He sympathized with Reid in his alarm at the materialistic and atheistic inferences that were constantly being drawn from what was called and generally regarded as "Locke's system," both in France and in the island of Great Britain, including both Scotland and England. The Irish do not appear to have made much progress in that direction. But the German mind was too profoundly religious and idealistic to be carried far in that direction. And Kant was not satisfied with Reid's way of treating the subject. Reid scarcely attempted to give a philosophical account of the basis of our knowledge, or even of his own theory of it. He rejected, as we have seen, the doctrine of ideas as *things in the mind*, and he held that in perception we see the object, and that in "reflection," or thinking upon it, the mind is occupied with the object itself and not with a mere idea-image of it, as Locke had taught. But he insisted on certain fundamental principles of "common sense" as furnishing a basis for our knowledge. Of this kind are, "what we think we see, we believe to exist as a substantial reality out of our minds." "What we remember, we believe to have truly occurred and as we remember it," and such like. But he did not attempt to give any account of these principles any further than to recognize and specify some of them as examples for our acceptance. He regarded them as fundamental, but he did not even attempt to gather them all and enumerate or group them into a system.

When Locke's system first came to the knowledge of Leibnitz (from 1646, four years after Locke) under the form that had been adopted by the French, namely, that he derived all ideas from sensation alone, it was stated in the form, "there is nothing in the mind that had not been previously in the senses —*nihil in intellectu quod non prius in sensu*, and he replied, "yes, *præter intellectum ipsum*"—nothing but the mind itself. And it is understood that he meant to imply by this, that the mind itself has a nature of its own and laws of action which must be taken into account in forming any satisfactory theory of knowledge.

This fact Kant fully recognized and appreciated, and what he really undertook to do was to work out what Liebnitz had indicated by his remark that the mind must be a something, have a nature and modes of operation of its own, a due consideration of which is essential to any true theory of knowledge.

Kant remarked, that as in Astronomy all systems had failed until Copernicus suggested that we start with the idea that the sun stands still and the earth moves, so as all efforts at a psychology which started with the assumption that things exist, had failed, in his estimation, it is time now to begin with the mind itself.

With this view he neglected Locke's doctrine of the origin and source of the elements of our ideas. And yet he virtually accepted the first class of these elements, those derived from sensation. Locke had spoken of these elements as the "matter" of our ideas; Kant calls them *Imhalt*, "content," as indicating what is contained in them, or that of which they are made up. But he omitted all except those derived from sensation.

If I were to borrow an illustration from the Physical Sciences I should refer to a different class of phenomena. Men have always known that there were clouds in the sky, and that the water we have comes in the form of rain from the clouds. But there were long and varied speculations about the clouds and the source from which they got their supply of water to make the rain. But now, at last, we have come to know that it all arises from the earth in the form, for the most part, of invisible vapor. There is nothing supernatural or mysterious about it.

§ 3. The first form of activity ascribed to the mind by Kant was that of furnishing the "form, or *schema* of the idea." Locke had indeed spoken of the mind as forming the ideas; this we can understand. But was it the same as "furnishing the form, or *schema*?" To form the matter or materials, or to make them into an idea, is a form of expression that we can understand, though in doing so we must fancy the idea to be something in the mind. But how the mind can *furnish* "the form" to anything, it is not so easy to understand or even to imagine or fancy. And yet Kant speaks of the "form" or "schema" as if it were a thing separate, or at least separable, in thought from the matter of the idea and as real and substantial even as the matter itself.

In Locke's theory the ideas thus formed in the mind are much like the images formed in the mirror, and thus resemble the objects themselves, though, perhaps, infinitely smaller, or, perhaps, like the "models" of objects which we may find in a museum, or in the patent office at Washington.

One of Kant's disciples has said that this operation of the mind in forming its ideas of things is like that of a kaleidoscope. We put into it certain pieces of colored glass, but the picture depends upon the arrangement of the pieces, and that depends upon the kaleidoscope itself. I take it up and have one combination of the elements and a picture accordingly. I lay it down and take it up again, it has been moved about and the picture, though having the same elements or pieces of glass as before, the same matter, is very different in form, or *schema*, as Kant calls it.

Now, suppose that instead of taking up the instrument the second time myself, some other person had taken it up; the picture he sees is likely to differ as much from mine as the second picture I saw did from the first. The difference between the two pictures that I saw results, indeed, from the different positions and relations of the glass. But in the case of two or more different persons, it may be the result of the difference in their mental constitutions.

You will recall what I said in the last Lecture about the "relativity of knowledge." If we look at the image that is formed on the retina of the eyes of different persons, we see that they are alike in all persons, both in regard to color and to the form of the image. But this gives us no assurance that the state of the nerve cells in the interior organs, or the sensation itself, is the same in different persons. What one calls white may, for aught we know, be the same in these respects as what another calls blue. But we have no means of comparing them that I know of. And in so far Kant's doctrine is, doubtless, correct.

But no such uncertainty, or "relativity," extends to the facts (1) that the objects—"the things themselves"—exist, (2) their separate individuality, (3) their form, and (4) their other properties (their relations to actions and reactions upon one another"). These elements of knowledge of things, therefore, are not affected by the element of uncertainty, or "relativity," which Hamilton pointed out. And it is not at all unlikely that Hamilton derived this doctrine of his from Kant. If so, it is not the only one in which he has taken points from Kant, perhaps unconsciously, but certainly without credit.

But do different minds form their ideas differently? If so, why? What, in fact, are the laws of mind or intelligence under which the mind forms its ideas? This is the question Kant undertook to answer. It resulted from Locke's theory that ideas are, as the word, taking its Greek origin into account, implies, resemblances, or likeness of things. But in Kant's theory they are not so, or, at least, we have no means of knowing that they are so, or even so much as feeling that they are so. Hence, he preferred to call them *anschauungen*, the "phenomena," that is, the appearances which things assume in our mind or rather which our mind gives them. Hence, his favorite and somewhat famous assertion, that we know nothing of "things themselves," *ding an sich*, but only their "phenomena," or in other words, the appearance or ideas of them which our own minds have made for our use.

I shall however, continue to use the word "idea" instead of "phenomena," and we must remember that the only difference between ideas, as held by

Locke and the ideas, or phenomena, as the word is used, by Kant, is that in Kant's use they did not, necessarily, while in Locke's they did, represent things by being like them in appearance.

§ 4. The first of these laws and conditions, as Kant discusses them, is that of time and space.

For all finite minds the act of cognition, and the act of forming the idea as well, must take place at some particular moment [of time] and the object must be, or, at least, it must be thought of as existing, in some particular place.

But what are time and space? Are they external realities, as Locke has assumed, and as even Cousin, after both Locke and Kant, had assumed them to be? If we see a thing at all, as finite beings, we see it now and it is here; or if the act does not take place now, and the thing is not here, the act took place at some time in the past and the thing was somewhere [in space] at the time. Hence space and time are *conditions* under which both, and alike, the acts of cognition must take place and the idea of the object must be formed in the mind. In this view the expressions "in time" and "in space" are not to be considered logically as nouns with a preposition before them, although they are so, but rather they are adverbs, denoting and expressing only modes or conditions of the act which we are speaking of, whether cognition or ideation. And it is convenient to form two fictions, one of a something extending through and surrounding all things, infinite in extension, and the other, beginning with the first event in the course of the world's events and extending, or, rather, enduring throughout the whole series so as to include all events, the one after the other, to the very last in the series, and call this time.

I will take occasion to say that I think that this is the best solution that has been yet offered of this problem, and I think that Kant will hereafter be acknowledged to have done the world a great service by suggesting it.

§ 5. Kant thinks that cognition, or conception, whichever it may be (and by cognition I mean the act by which we perceive the object or thing itself, if that ever takes place, and by conception I mean the act by which we form the idea of it, whether an act of cognition has taken place or not)—Kant, I say, holds and teaches that cognition or conception can take place only under four laws of mental action which he calls "*categories*." Whatever we see or think of must be seen or thought of as (1) (*a*) an individual object, (*b*) several, making a part of a class, and (*c*) several, making a whole class or genus. (2) As (*a*) being real, (*b*) being unreal, or (*c*) partly real and partly fictitious or fancied. (3) (*a*) As either substance, (*b*) as cause or effect; (*c*) as a reciprocity, that is, action and reaction between two objects, as gravity between the sun and the earth, etc., or (4) whatever is thought of must be thought of as (*a*) existing in fact, (*b*) possible or impossible, (*c*) as existing by necessity.

Now, whatever we may think of the practical value of these Categories, I think that no one will doubt their accuracy and completeness. They are, indeed, very different from Aristotle's Categories, whether we regard his four causes for scientific purposes as (1) efficient, (2) material, (3) formal and (4) final, or the ten which he specified in his Logic for rhetorical purposes. But I think we shall see that, as giving a complete list of all the possible categories or laws under which we form our conceptions, they are of great value and give a comprehensive view and are of use for a purpose quite unlike that of either of those given by Aristotle. In fact, they are not so much categories of knowledge, designed to show its nature, limits, and its comprehensiveness, as laws and conditions under which knowledge can be obtained, or the mind can form its conceptions, idea-images—*erscheinungen*, *vorstellungen*, or *begriffe*, as the case may be, or as one may choose to call them.

In view of what he has thus done, I think that the name of Kant will ever be regarded as that of one of the greatest names in the progress of knowledge, or, rather, in the progress of our knowledge or conception of what knowledge is, and the ways in which it can be acquired.

But we must remember that his Categories are but an attempt to set forth what Liebnitz called for—a knowledge of the laws of nature and the mind in its actions.

Thus far I have spoken chiefly of Kant's theory of the origin and formation of our ideas or conceptions—*begriffe*, as he preferred to call them in this relation.

§ 6. But in reference to the proof or certainty of propositions, he divides them into three classes: (1) analytic *a priori*, which assert of the subject only what we know of it by knowing its name and the definition of the word, as, "a triangle has three sides;" (2) synthetic *a priori*, including in that class all the propositions which add to our knowledge of an object anything more than was contained in the mere definition of the object that can be proved to be true by reasoning from its nature and without any observation, experience, or measurement, as, "the sum of the angles of a triangle is equal to two right angles," and (3) synthetic *a posteriori*, including all those propositions with regard to things and classes of things that can be proved only by observation, and as a result of personal observation or testimony, and reasoning by induction or deduction from facts that have been thus obtained.

The first of these classes, the analytic *a priori*, he regards as asserting truths that are absolutely certain. The second, the synthetic *a priori*, though in his estimation *highly probable*, cannot be tested by the only infallible means, namely the principle of identity and contradiction. The first class rests on *immediate* insight, the second one on demonstration from the nature of the things in the strictest sense of the word, as in mathematics. But the third class, the synthetic *a posteriori*, relate to facts and objects in nature, or what we regard as such, and of which in themselves we have no knowledge.

Kant, in his "*Prolegomena*," or introduction, "to any future system of Metaphysics" (§I, 2, a, b, and c), lays it down as a fundamental fact that the principle of identity and contradiction which Aristotle had laid down as fundamental (Lect. II,) can be applied only to the first of the three classes of propositions named above, the *analytic a priori.*

But in fact it is as applicable to the second class, the *synthetic a priori*, though the application is not so easily made. The application may require, as doubtless it does, some ingenuity and skill in the transformation of sentences. What is to be done with the words of a sentence is very much the same as the transpositions and transformations of the terms used in Algebraic equations. By this means we can get any one of the terms of an equation into one member and on one side of the sign of equation, so that we can see its value in the other terms. Now just this thing can be done with the words in any sentence. Kant probably had never seen or thought of this fact.

What Kant regards as Logic is rather an account of the formation of our ideas or conceptions, the laws and conditions under which that formation takes place, rather than the process of reasoning, including both induction and deduction, which Aristotle included under that name and gave to the world as properly to be called by the title, Logic.

But Kant's great fault and his first mistake was in overlooking two of Locke's fundamental principles; (1) that the mere act of cognition by sense-perception, or in any other way, necessarily implies the reality of the object perceived, and (2) omitting the second great class of the elements of our ideas, namely, those that are derived by consciousness and reflection, the ideas of the acts and states of the mind.

But we may pause a moment to consider what is the real force and value of his distinction between knowledge or cognition of the "thing itself," and merely a conception of it formed by the mind in the way already described, when we spoke of the mind as furnishing the *schema*, a form of the idea.

And in a certain very important sense our ideas of things are all that we know of them. The ideas that we have of things are what we are guided by in all our actions and estimates of things. If my idea of the sun and moon is, that they are but small bodies revolving around the earth, I so speak of them and so act in regard to them. The articles I buy for food or clothing depend upon my ideas of them, or, rather, the act of buying or neglecting them does. My taking of a drug depends upon my ideas of its nature and effect on my system. My rejection or adoption of Christianity depends on the idea I have of it.

But if we accept Locke's first principle, as stated above, and I think the time has gone by when it will be or can be seriously questioned, the act of cognition implies the reality of the thing itself. In fact, Kant himself admits it and accepts it far enough for our present purpose. It may be no matter whether we know what whiteness, for example, is, "in itself." But we do know that objects are white, some of them at least, while others are of a different color.

The fault that underlies and falsifies Kant's discussion of this whole subject from beginning to end, is the fact that he makes no distinction, recognizes no difference and apparently never so much as thought that there is any difference between substances and attributes, or thought of attributes as less substantial than the things themselves. We see things, doubtless; the common language of all men implies this. But then, on Kant's theory, or on Locke's, what we get on seeing them is their properties; these properties become the matter of our ideas; we work it up into them. But in doing so we make them substances and treat them as such.

Now, it is manifest that in the very act of cognition we not only see that something is, but also something of what it is. Thus, I cannot see this paper without, or unless, it is here to be perceived. If I perceive it by the eye, it must be white or of some other color, and that so far as it goes is knowledge of the thing itself—the paper. If I perceive it by the hand, it must be hard so as to resist pressure, of some temperature colder or warmer than my hand, of precisely the same temperature. But even then I should perceive it by reason of the difference in what is called the specific temperature and the readiness, or the contrary, with which it imparts its heat to other objects. But all of them, hardness, temperature, etc., are the properties *of the object*. They go to form not only my idea of the object, its appearance (*erscheinung*) within me, but it is a part of my knowledge of the object, "the thing itself;" that is, I know by these means that it is white; and what is whiteness, hardness, etc.? In fact we know nothing of the property except as we know the thing itself, and we know as much of the thing as we know of its properties.

There is no question and no question can be raised or discussed, or so much as thought of, that does not begin by objectifying the abstractions and making the properties substances for the occasion. It is, in fact, Descartes' old mistake. "I cannot," he says, "see the men and women that are passing under my window, on account of the coats and hats that cover them." Just so, in his estimation, the properties of objects cover the objects themselves—their substance—from our sight. But this makes the properties as substantial as what he calls the substance itself.

This doctrine of Kant is sometimes taken and discussed as though what he meant was, that we do not know anything of these objects as they would be if they existed each one of them alone and by itself and not in relation to anything else. Perhaps some such thought was in his mind at times, at least. But such a knowledge, if it were possible, could be of no value, for the objects are in relation to us and to one another, and can never be otherwise. If that be taken as Kant's meaning, it is true enough, perhaps, but it is of no importance. I do not know of anybody that would care to deny it; there would be either nothing to be known or nobody to know it. But even so, truths that are *a priori* in Kant's sense, whether analytic or synthetic, must be substantially true, whether there is anybody to know them or not.

And yet, what we have by observation is knowledge, if there is anything that can be called by that name; and if it is knowledge at all, it must be knowledge of "the things themselves," as far as it goes. It cannot be of mere fictions, arbitrary creations of the mind, nor yet of mere subjective states of the mind, its mere thoughts and feelings. As knowledge it may be very inadequate; perfectly adequate knowledge would be omniscience. And it may be very incorrect, for a large part of our experience consists in correcting the errors we have fallen into. But it is knowledge nevertheless, what there is of it.

We must remember that Locke's account of ideas considered all ideas *of things* as complex, made up of elements of the two classes which I have often named and referred to. When Kant, therefore, insists that we know "not things themselves," or "in themselves," as it is common to write it in English, I doubt if he referred to these elements, as whiteness, hardness, etc., at all. He seems, rather, to have had in mind the complex ideas of the things, just as Cousin did at a later date.

These elements of ideas the mind of each one of us combines for itself and each in its own way. And this it does, *in Locke's view*, so as to make of them resemblances of the objects; while, *in Kant's view*, the mind acts under laws, or Categories, indeed, but these laws, or Categories, are such that they do not make the ideas, "phenomena," or appearances of the things, so far as we know or can know, in any sense or to any extent, like the objects themselves.

But Kant, like Reid, was not inclined to leave matters here. He fell back, as Ried had done, on the natural instincts and common sense of mankind. As a philosopher, like Hume, he could find no ground for believing anything; but as a man he, like Hume, did believe in what he could see. And, like Reid, he did believe in God and immortality, in duty and in religion. He wrote a treatise on what he called "the Practical Reason," for the purpose of setting forth these facts and doctrines. In these writings he recognized the fact of the feeling of obligation, that gives rise to what has been called his "categorical imperative"—the feeling of absolute obligation to do certain things whenever the idea of them rises distinctly before the mind.

Kant's doctrine that we know nothing of things themselves, was not his only contribution to the agnosticism of our age. He held or, rather, expressly declared, as I have just said, that the principle of identity and contradiction applies only to definitions, or, as he called them, analytic propositions *a priori*. And yet all the reasoning in his whole work —"the Kritik of Pure Reason"—depends on that principle and is an exhibition of its influence and applications to whatever can be asserted as absolute truth. This is one of the two greatest surprises I have ever met with in my reading in metaphysics. The other of the two was that in which Aristotle perseveres through several chapters in an effort to show how and under what circumstances we may have conclusions that are true, from premises that are confessedly false!

The importance of this position of Kant's is seen if we call to mind the fact that he regarded all the truths of mathematics beyond the mere first axioms and definitions as *a priori*; although synthetic, as he called them. They are synthetic, that is, they add to our knowledge of a thing something more than is contained in, or expressed by, its mere mame or definition. Thus, that a triangle has three sides is *analytic*, but that its three angles are equal to two right angles is *synthetic*, and yet it is *a priori* and as truly tested by, and dependent upon, the principle of identity and contradiction, though perhaps not easily applied, as the definition itself.

§ 7. Another contribution to Agnosticism was his assertion that all our knowledge, all we know or can hope or profess to know, rests on one or more of four pairs of "Antinomies." These pairs are made up of two apparently contradictory propositions each, and the one and the other of each pair may be proved as well as the other. And the proof, as he gives it, and in fact that which he everywhere gives, is, will it be believed?—based on the very principle he repudiates, the principle of identity and contradiction? The reasoning is good and irrefutable *in form*. But in each of the four cases it rests on what is a manifest "ambiguous middle."

It seems to me worth while to state these Antomonies in form. They are four in number.

1. *Thesis.* The world had a beginning in time and is limited in space. *Antithesis.* The world has, in respect to time and space, neither beginning nor limits.

2. *Thesis.* Everything in the world is simple. *Antithesis.* Nothing in the world is simple, but all things are made up of parts.

3. *Thesis.* In the world there are free and spontaneously acting causes. *Antithesis.* In the world there is no free agency, but all is bound by the laws of nature.

4. *Thesis.* In the series of the world's causes there is somewhere a Being whose existence is of necessity. *Antithesis.* There is nothing in the world whose existence is necessary, but all is contingent or accidental. (*Zufollig.*)

Kant follows each of these pairs of "contradictions" (as he calls them and as they are in form) with a series of "remarks" and also of what he calls "proof."

From these "remarks" and "proofs" it is evident that in each case there is an ambiguity, what is called an "ambiguous middle."

In the first pair, in the thesis, 'the world" means, as he says, *weltreiche*, the course of worldly events and the series of worldly objects. But in the Antithesis it means, as he also says, the *weltinbegriff*, or the conception or idea of the world. Thus, while of the objects in the world there is no one that is infinite, and among its events there is no one that is eternal in duration, yet the very idea of the world, not the world itself, implies something, as he argues, that is infinite and eternal.

In the second pair he means by "simple," incapable of division, and he instances the mind and space. But when saying that all objects in the world are made of parts, and so are not simple, he is referring to *material* objects and the doctrine that they are made up of atoms and are infinitely divisible as all modern science teaches.

In the third pair, when he denies free agency and spontaneous activity in "the world," he expressly limits his statements to the world, as made up of material objects, and then affirms that this kind of action in the mind of man—he is conscious of it in himself—which is also in a sense in the world.

In the fourth pair, taking the *Thesis* and *Antithesis* together, he proves that while all other objects and events which make up "the world" are not one of them necessary, so that their existence may not be denied, and the world would have been pretty much the same if they had never existed or occurred and no one that is not dependent on some cause or condition, yet there is one Being whose existence is absolute and cannot be denied.

Hence, we have as the elements of Kant's Agnosticism: (1) the denial that we know "things themselves" or anything else but our ideas of them, which he calls their phenomena; (2) his denial of the application of the principles of identity and contradiction to anything beyond what he calls propositions, which are analytic *a priori*, that is, mere definitions, and (3) his doctrine that all that we can call knowledge rests in the last analysis, on one or another or several of these apparent contradictions which he calls Antinomies.

Kant saw, fully and clearly, the extent of the uncertainty and agnosticism to which his principles would give rise. Thus he says, "we can neither endure the thought nor yet protect ourselves against it, that a Being whom we represent to ourselves as the highest among all possible things should say to Himself, 'I am from eternity to eternity, besides Me there is nothing except what exists and is something through My will. But where then am I? Here everything sinks under us and the greatest and most perfect Thing, as well as the smallest, floats before the speculative reason without support to which it costs (the reason) nothing to allow them, the one, as well as the other, that is, the highest and most perfect, as well as the smallest, to disappear in nothingness without the least effort to prevent it.'" (Kritik, works, Vol. II, p. 477.)

We have seen that he proposed to base our *belief in God* (it was not "knowledge" in his sense of the word), and in the principles of morality on our instincts and natural tendencies to believe and act as though things were true and real, though, as it thus appears, he could see no way to preserve them, to be true.

Kant's theory of knowledge thus did not imply the existence of any one substantial thing, neither material objects in the outward world, nor even the mind within, as Locke's had done. It was so formed as to be true if there were nothing in existence but our ideas, as well as if there were.

What then, we may ask, is the necessity for the existence of realities on the theory of Kant? That theory neither implies their existence nor furnishes any means of proving it.

So Fichte thought, and we have, after Descartes, Malebranche, and after Locke, Berkeley, so after Kant, Fichte, trying to form a theory of knowledge and of ontology as well, which is purely ideal, and does not imply or assume the existence of any substantial thing, whatever, not even the mind of him that thinks. This it will be observed is carrying the process of ignoring or denying the difference between substances and properties to the extreme, and leaving no ground for the difference in the use of abstract and of concrete terms. It implies perception without anything perceived, observation without anything that is observed, reflection without either any mind that reflects or any object that is reflected upon.

Doubtless these men used language that implies the doctrine which they professed to deny, or rather to ignore. Nay, in some cases they made positive declarations that implied the truth of what they deny or say cannot be known. They were men and their natural instincts would sometimes triumph over their philosophy, so that, after the example of Hume, they would believe and act upon, as men, what, as philosophers, they could see no good reason for affirming or professing to believe.

In the philosophy of these men there is nothing substantial, at least, nothing that is not of the mind.

The objects that we see, or think we see, are only states of our own minds projected, by a sort of magic-lantern process, into what we call space, just like the "shadows" which Plato supposed his men to be seeing in the cavern before them, which were, in his opinion, but "the shadows of ideas." Or, to use one other illustration, what we think we see is like the images of our dreams, or the hallucinations of false perception.

Even God, in 'this philosophy, is no substantial Reality, no personal Being, but, rather, as one writer has it, "not an individual Being, but merely a manifestation of Supreme laws, the logical order of events, the *ordo ordinans* of the universe." Hence, in his view, the question whether a philosophical system is atheistic or agnostic, is of no account, or rather it is preposterous; for there is no atheism, all is theism, all is God, there is no agnosticism, for all is knowledge; knowledge is but thought and thought is knowledge, so that what a man thinks, that he knows.

§ 6. Now that which Kant had shown to be necessary and conditional to our ideas and *conception* of things, Hegel undertook to show to be the essential conditions of the *existence* of the things themselves.

The laws which he developed are, in relation to the ontology of things, very much the same as the laws which are developed in arithmetic and geometry—including, of course, the higher branches of mathematics. Analytics and the Calculus, are to their relations to number and form. If things will exist, then two and two of them must make four of them, and so on, of all the relations of number, whatever they may be and wherever and whenever they may exist. So, too, if they will exist as extended objects, any straight line in them must be the shortest between two points, any triangular surface must be just half that of a rectangle of the same base and height.

So in ontology, there are certain inevitable laws which may be developed *a priori*, and rest ultimately on the principle of identity and contradiction, and may be reduced to a form of statement in which the applicability of that law is manifest on inspection. It is here, as in Algebra, chiefly a matter of dexterity and skill in manipulating the formulæ. But the process has definite rules, rules as definite as those for the transposition of terms from one member of an equation to the other, or of the substitution of one form of a term for another which is its equivalent.

Hegel's language is very peculiar. It is extremely difficult and obscure, paradoxical and apparently self-contradicting in the extreme. But I venture to give the following as the substance of his theory:

§ 10. I think we shall get at our starting-point best by supposing the things around existing as they now appear to do, each one in a different place or point of space, and also with a difference in some of its properties or modes from any and every other thing. Now, suppose each of these objects to lose all of its properties and sink at once into an undistinguishable mass without any properties whatever.

This would be Hegel's absolute Being, *Seyn*. It is also his "nothing," *das Nichts;* for, as it would have no properties and could not even be in any place, nothing could be said of it, for it has no properties and is nowhere. We could not even say, "it is here," or, "it exists now." We could not even say that it *ex*ists. It merely is—"absolute quality*less* being."

This absolute being cannot be said to *ex*ist—*daseyn;* for existence implies being *some*where and *out of* (*ex*) *some*thing which, therefore, implies the reality of that out of which (*ex*) it exists, and which, therefore, is some *other* thing.

This Being—absolute Being—is eternal, for to be at any particular time, now, past, or hereafter, would be to *ex*ist and then it must be somewhere and have properties, or be *some*thing.

It is infinite, for, having no properties, it can have no limits, for limits imply extension in space, and so difference from other objects.

It is absolute, for to be in relations to any other thing, whether of dependence, contrariety, or any other, that other thing must exist, be somewhere and something also.

And, moreover, in as much as, according to the hypothesis, it has no properties, nothing can be said of it, for in saying anything of it we should predicate some property of it. It is, therefore, virtually and in a most important sense, nothing as well as absolute being. And Hegel's fundamental paradox and apparent contradiction is, "Being and non-Being are the same thing." This, he calls, therefore, not only absolute being or being absolutely, but also "*the* absolute non-being," or *das Nichts*, "the nothing," literally, which is eternal, infinite and absolute.

But now suppose some part of this absolute being emerges from the property*less* mass. It must emerge *some* where and at *some* time and must, moreover, take to itself some property. This constitutes its existence and makes it to be *some* one thing. But the remainder of the absolute being is no longer absolute, it is *related* to what has thus sprung into existence and must exist also somewhere and with some property that is unlike that which had already sprung into existence. Here, then, are two *some* things, unlike in their properties (*differentia*), and co-ordinated in their existence. If one is inert and senseless matter the other must be intelligent and spontaneously active.

This process once begun may be conceived as going on forever. The matter may be divided into fluid and solid; it may be divided, also, into the chemical elements, each one with a *differentia* of its own. It may be divided so that a part of it becomes living tissues, and these living beings may be divided and subdivided until we have all the species of plants and animals that now exist or may exist hereafter. And even the species are divided into individuals, which, being no longer logically divisible, is the end in that direction.

This, however, is not the only line of sub-division. We may divide objects in reference to their accidental properties, making a mere transient classification, as when we speak of the good and the bad, of things useful or useless, of men who are soldiers or farmers, or merchants, or mechanics, or of the sick, as a class who are distinct from the *well* ones, and so on.

§ 11. We are now in a position to contrast the two great world-schema, that of Aristotle with its opposite, that of Hegel. The one begins where the other ends. And they go in opposite directions.

Aristotle begins with individual objects. Each one belongs to a class, this is a table, that is a chair, etc. *Tables* and *chairs*, then, are *species*; but they, as species, imply and belong to a class above them which we call a proximate genus, as *furniture*. But articles of furniture are but a class, and articles of clothing are another; these two, as well as a good many others, belong to some corresponding class or genus, as *material things*. But there are *im*material things, as the minds of men, which, together with material things, make up a still higher and more comprehending class, as, for example, "things," the highest and most comprehensive class we call the *summum genus*.

And this view of the universe of things gives rise to the *dictum* so often quoted, "whatever may be affirmed or denied of a class, may be affirmed or denied accordingly of any individual in that class."

This is the question of subordination and comprehension and includes all things that we think of or suppose to exist in our summum genus or all-comprehending class.

The conception, or idea, of any individual object has for its *comprehension*, as we call it, only one object, but all of the three classes of properties, *essentia*, *differentia*, *and inseparable accidents*, as making up the matter, or as we sometimes call it, the *intention* of the conception of the individual.

The summum genus, on the other hand, and at the other extreme, includes for its comprehension all objects in the universe, while it has for its intention or matter only one property which is common to them all.

Hegel, on the other hand, as we have seen, begins at the other extreme, at "absolute being," which, in his schema, has no properties and is the same as nothing, or the all, and proceeds by division and sub-division, until he reaches individual objects with which Aristotle begins.

But a consideration of Hegel's view gives rise to another profound principle of reasoning and means of knowledge, which is, in fact, the compeer of Aristotle's, and may be called the law of exclusion and co-ordination, as we call Aristotle's the law of subordination and comprehension.

§ 12. This law may be considered from either of two points of view. Thus, if we start from Aristotle's point of view, we see that co-ordination is essential to cognition. The blind have no idea of light or of color. But they have no idea of darkness either. The deaf have no idea of silence. Enable the blind to see and they will know or see what darkness is as well as that of light. So with the deaf; enable them to hear and with their idea of sound they get that of silence as well.

Now, this law is universal. We get, and can get, no idea or thought of anything whatever, except as we get it by co-ordination with its opposite.

But Hegel takes the other starting-point and shows that it is a law of being and the coming into existence, as well as one of cognition, from which it results that no one thing can exist without its co-ordinate or opposite. No part of the absolute being can take the property of whiteness, without leaving the rest, or some part of it that exists but is (negatively) not white. And if it is at all and is not white, it must be (affirmatively) of some other color, for color only is co-ordinate to color; that is, one color and that alone, is co-ordinate to another color.

Thus, if a part of the non-being, or absolute, becomes inert, we call it matter. But the other part, or *an*other part, must be spontaneous in its activity, and we call it mind. Hence, everthing that *ex*ists is co-ordinated by something else which also exists and forms either another species or another individual.

This is, in reality, the ultimate fact or reality on which what are called Disjunctive Syllogisms are based. Every individual object is the co-ordinate of some other. The same is true of every species and proximate genus, until we reach the two which together make up the summum genus, whatever that may be. Thus, in the case of numbers, there are but two kinds or species, odd and even. Hence, we say of any number, as *x*, "*x* is either odd or even." Now, we may have the means of knowing or proving that a number is not even, without knowing how much it is. Hence, we may say, "as it is not even, therefore it must be odd."

In this case we have but two co-ordinate species and, therefore, we need to mention only two. But there may be three or, in fact, any number of co-ordinate species in a genus. This is the case in regard to the states of matter. It may be either solid, fluid or gaseous. If, then, by way of conclusion, we show or ascertain that a piece of matter is not in either one of the two, the inference that it is in the other is inevitable.

This, so far as reasoning is concerned. But Hegel insists and, as I think, proves that it must be so in regard to reality and existence as well. We must be sure that they are co-ordinates.

§ 12. And this raises a question that Hegel has not considered, nor has it received from any one, so far as I know, the attention which its importance deserves.

In the course of these Lectures I have had occasion several times to refer to the elements of ideas, or the elementary ideas. They are such as no one can get, except by actual cognition of some object. Such, as I think, are the ideas of white, yellow, red, blue, and black, among the colors of objects. But I think, as I have said, that a person who had seen objects that are the one black and the other white, could imagine one that is gray. So with yellow and red in relation to orange-colored objects, blue and red with regard to those that are purple.

§ 13. I will suggest here three limitations or cautions that must be observed in the application of this law—Hegel's law of co-ordination and exclusion, or exclusion and co-ordination, whichever we may choose to call it:

(1) The first is, that we must not accept a word which is a mere etymological compound, as necessarily implying the reality of anything.

For example, this paper is finite, this table is finite, and so are all the objects I can see; they are limited and finite in the extent of their being, in their reality. But I can very easily put the negative, "in," before the adjective, "finite," and *say* of anything, it is *in*finite. This would furnish no proof that I had seen anything that is infinite, nor would it of itself be proof that there is anything of which this adjective can be predicated. The only proof, if, indeed, there can be any such thing as proving a negative, is by the process of demonstration.

The word, "substance," furnishes another good illustration of this point. We see objects before us; they are substantial. But what do we mean by the word, "substance?" We begin to think of an object, how it looks, contrast and compare it with others. We thus find ourselves thinking of what we call its properties. But then, we also think of something behind or under these properties. We call it the substance. But the word is purely an etymological compound. It denotes the object by no objective property, but only by what it does; it *stands*, or is supposed to do so, *under* the properties, for that is the etymology of the word.

(2) The second caution that I would give arises out of the fact first stated, namely, that we can often imagine objects that are characterized by what I have thus indicated as compound properties. Thus if we can think of an object as white, there must have been, and have been seen by us, an object of that color. But suppose we call it gray. I do not think that the mere use of the term would prove that any object of that color had been seen, or had ever existed, but only imagined.

(3) The third caution that I would suggest is that any adjective which denotes only the absence of certain properties that distinguish and co-ordinate two or more objects, or species, does not necessarily prove the existence of either an object or a class of objects differentiated by that term. Thus we speak of animals as male and female. But there is another class of objects, inanimate objects, that have not the characteristics of either of these two, and we call them neuter, and the words that denote them we regard as of the neuter gender. But this would not of itself prove that there were such objects.

Or, to take the case already alluded to. We know that matter exists in the three forms, fluid, gaseous and solid. We suppose a form called ether, that is, neither the one nor the other of the three, but is without gravity, without impenetrability and yet with most intense elasticity. We call this supposed substance æther, the Greek word, which meant in that language the air, and more especially the upper air, as being the purest and the lightest. But the existence of ether is doubted by scientific men. That, however, is a question we need not now consider. My point is that the mere word does not prove the existence of the thing, because we ascribe to it no element of an idea that we may not have obtained by the cognition of something else.

Now this law is an ontological law of existence which Hegel was the first to develop and state, I cannot say, explain, or state *clearly;* for his statements are far from clear to most readers, and may be called, as I have said, the law of co-ordination and exclusion. And I regard it as the peer of Aristotle's famous dictum, *de omni et nullo*, which we have called the law of subordination and comprehension.

It is a matter of fact that whatever we cognize, we cognize as an individual object, as Aristotle supposed. It may be mechanically or numerically divisible, but logically it is indivisible, that is, it is an individual. This pen, for example, may be divided into any number of parts *mechanically*, but it cannot be divided *logically* so as to be two or more pens. So with any object we perceive or observe.

This is, in fact, the fundamental law or fact which Kant has stated in the illustrations and proofs of his second pair of Antitheses. Mechanically and numerically all objects are considered as "complex," made up of atoms, and, therefore, divisible, potentially, to infinity. But then, every object is considered as one, an individual in a class, is indivisible in this respect and not made up of other individuals. We cannot divide the individual without destroying the individuality. We may, by division, make it into parts and into parts only, there can be no logical division.

But we can never observe one object unless there are two that are co-ordinated. If we see an object that is white it is because there is some other object in the field of vision and is seen at the same time and in the same act of vision that is *not* white, and so is of some other color. If there were but one object in the field of vision, and that object were of one color and the same shade of the color, so that we could see no difference in color or shade, we could not see it at all, any more than we can see in the dark. And so of all the sensible properties of objects.

And this law holds with regard to conception as well as to the perception or cognition of objects. We see this in the case of the blind and the deaf, as already said. The blind have no idea of color, as all know. But they have no idea of darkness either. So the dumb not only have no idea of sound, they have no idea of silence either; although they are immersed in it all the while. In a sense they have experience of it but in another sense they have not. They have no idea of it.

Not, so far as we know, from any experience and observation of facts of all the classes of sensations that we get by them, the absence or inactivity of the organ precludes the possibility of that subdivision of the class of elementary ideas, which, according to Locke's theory, we get by that organ.

I think, therefore, that this fact, and the class of facts of which it is an example, proves

(1) Locke's theory that all of our elements of ideas, so far as sensible objects are concerned, are derived by sensations produced in us by the objects themselves.

(2) I think that they prove Kant's doctrine, that we cannot imagine, conceive, or think of objects, except as existing in time and space, and as being in one or the other of his specified categories. Nor can we think of anything, substance, property or fiction, except as we think of it as in one of the two categories; (1) substance, or (2) property. And if as substance, then as cause, and if as property, then as inhering in and belonging to some substantial object.

(3) And I think that they prove Hegel's doctrine that things exist and can exist only in pairs, at least, and in co-ordination to each other, as well as in subordination to a higher class, species, genus, or some proximate genus, which is according to Aristotle's view.

If, now, we turn our attention to Lock's second class, the elements of ideas which we get from consciousness and reflection, I think we shall find a confirmation of these views which is quite as satisfactory, though not so obvious and easily understood at first thought.

We can readily see and understand that one who had not perceived anything could no more understand what the act of perception is, or what we mean by the word perception, than a blind man can understand what color is, never having perceived anything that is of any color. In the same way one who had never felt any pain, or seen and admired anything that we call beautiful, could not understand what the words pain, admiration, and beauty mean; he would have no idea of the acts and states of the mind which they are used to denote.

We may get a good illustration of this point from a subject that has greatly occupied the thoughts and discussions of men for many centuries—I mean the freedom of volition.

We embarrass the subject by speaking of "the will" and then discussing the subject as if "the will" were a substantial reality that God has made, instead of being only a fiction of our own creation. The only reality in the case is "the mind,"or if we choose to so regard it, "the will" or an "alternate conception" of the mind, which is the same as the mind willing, or acting as will.

The question then is, is the mind free in its action? Is it, in other words, spontaneous rather than inert like the objects of inanimate matter around us?

I think that spontaneity is simple and elementary in its nature. It clearly does not occur in inanimate matter. Does it occur in our own minds? If not, whence the idea? Whence the question? Whence the name? Without experience of it we could no more have the word or the idea, than the blind could have the idea of color, or the deaf the idea of sound.

Now, make this general, and suppose one to have none of the mental acts or states denoted by the words, perception, reasoning, memory, etc.; he would have no consciousness, in the sense of the term in which it has been used. And, perhaps, we had better avail ourselves of the distinction that is insisted upon by Kant and call it, in this respect, consciousness. In this case we have complete idiocy.

But what makes the idiocy? It is the very absence of these forms of mental activity, so that they cannot be seen or perceived in the consciousness, and cannot be seen or observed in this case, simply on account of the mere fact that they are not there to be seen or observed. Now, here, as in sense-perception, the result is the same in each of the two cases, namely, (1) where there is reality to be seen, and (2) no faculty, organ, means, or instrument with which to perceive it. In both cases and alike there is no elementary idea.

If, now, we adopt Locke's doctrine with regard to the elements of our ideas in the mind, this law of co-ordination comes to be of fundamental importance in regard to our ontology and knowledge of things. For it follows

(1) That there can be no element of an idea, whether of matter or of mind, without some object that has been actually cognized which has the property or mode denoted by the word that expresses that idea and, therefore, of course, the object, whether matter or mind, must be a substantial reality.

(2) There can be no word in any language denot-

ing an object, or any quality or mode of an object, without its opposite or co-ordinate, which also implies a reality that has been cognized, as silence and sound, light and darkness, etc. Or, to take concrete terms, we have mind and matter, God and the world (of material things).

If, however, Locke's theory be not the correct one and if the mind can originate, not idea-images of things, but the very elements of our ideas, then there is and can be no certainty of anything unless it be, by possibility, the certainty of our own existence, *cogito ergo sum*. And I think this certainty implies the *substantial* existence of the ego, the mind, not as Hume and J. S. Mill hold, a mere bundle or conglomeration of sensations.

But if this theory be true, each of the objects around us which we truly perceive, must be as real as ourselves; light must be as real, and real in the same sense, as darkness; mind as real as matter, and God as real as the material universe.

We have, then, the three points just demonstrated, I think, so far as observed facts can ever be said to demonstrate any general truth, namely, (1) that all the elements of ideas are derived from observation, (2) the very thought of objects implies thought of them in some particular place or form, and (3) their very existence implies in each case the reality of something else.

§ 14. But a due consideration of Hegel's theory of knowledge leads us one step farther, though implying in the most peremptory manner the existence and reality of external things. He has been thought to teach a philosophy that does not inculcate as a positive doctrine their substantial existence. He does, indeed, say that "*the* concept" *der begriff*, not only contains all things but *is*, in fact, all things. I think, however, that what Hegel really means is, that this universal conception comprehends all that we know or even think of, only in a logical way. It is virtually, as it seems to me, only the *summum genus* of the scholastics.

But then, undoubtedly, Hegel was too much of a German to see and appreciate any difference between an abstraction and a reality ; too much of a German to have a doubt that ideas, notions, or concepts are realities *in the mind* ; as real in the mind as the table, chairs, and other articles of furniture, are in the room around us.

And, doubtless, too, he appreciated Kant's point, which for all practical purposes was well taken, that what we have to do with in our logic and reasoning about things, as well as in the practical use we make of them, is not so much the things themselves as they are in reality and in nature, as our ideas of the things, the appearance which they have to our mental faculties. In fact we are guided by our ideas of things rather than by the things themselves. And in consequence he has been regarded as denying, or rather ignoring, the existence and reality of external things, and even the existence of a Personal God.

This has led, as I think, to a misconception of his real work and his great merit as a philosopher. It has led also to a misappreciation of his system, as I cannot but regard it, in the neglect of facts and the inductive methods of investigation, both in history and in the natural sciences.

In fact Hegel's philosophy, that is, what he taught and is regarded as his philosophy, has had the usual fate of all great founders of systems and original thinkers, they seldom have disciples who fully appreciate them and take their system as a whole. We have seen how Plato's disciples developed Neo-Platonic pantheism, how Aristotle's disciples developed scholasticism, how Locke's disciples, or those that claimed to be such, developed atheism, or at least agnosticism, from what they understand to be his system.

So with Hegel, most of those who are known as Hegelians, and who claim to be his disciples, overlook that part of his system which leads to a very positive ontology, demonstrating the difference between substance and properties; demonstrating, also, the existence of material objects out of the mind as well as the mind itself and its thoughts; and the existence of a Personal God, as truly and as certainly as that of any other one object that we can cognize or speak of. They start from his use of abstract terms and from his declaration that "the concept," *der Begriff*, is, or as we should rather say, includes all things, and proceed to develop a form of idealism which is unintelligible as Neo-Platonism, and which is sometimes confounded with pantheism, but which reduces all things to mere thought and, for each man, his own thought.

The following propositions are not only expressly stated but they are as clearly deducible from such a conception of his system as the atheism of Hume and as the agnosticism of Spencer is from Locke's system.

(1) Thought does not necessarily imply a thinking mind, if, indeed, there is any difference between mind and thought; and thought and the things thought of are not one and the same. The perceiving mind and the things perceived are substantially one and the same.

(2) We cannot properly say that God exercises any moral government over the world, or punishes men for sin. All there is in the case is the fact that men's thoughts punish them for wrong doing whenever they are conscious of having done anything that is wrong.

(3) We cannot affirm that there is any *personal* immortality for man, that is, any continuance of the personal living being after the death of the body. All we can say of any man is what we say of Plato, "he lives in his philosophy, or of Howard, "he lives in his works," or of Washington, "he lives in the Republic he founded."

(4) Governments have no legitimate authority to declare certain acts to be crimes and to punish those that commit them for so doing. The case presented was this: "Suppose a man met you on the sidewalk, knocks you down and takes your purse from your pocket, what right have you, or has the State, to punish him for this larceny from the person, more

or other than he would have to bring you into court and punish you for refusing to give him your purse in case he had merely asked you for it and you had refused to give it to him?" And the answer was "none whatever," no *right* but only the power to do so.

Now the great fundamental fault of this form of Idealism, is the overlooking and the neglecting the difference between things and their modes or properties, that is, between concrete and abstract terms in regard to the use we may make of them. By Hegel's law, there can be no reality, that is, no real substance or thing, without properties, and no property without a substance. But the one cannot be the other. Substance cannot be property; if it is, it is not substance. And so, if a property is substance it is not property. This paper is white, but it is not white*ness*. A man is wise, but he is not wisdom; nor is wisdom a man. A man is a person, but he is not a person*ality*, nor is a personality a man, or anything else but a property or character of a person.

The moment we look through the words to the things which they denote, we see this truth, and see, moreover, its absolute truth and necessity as a fundamental law of thought and of cognition, and a fundamental law of reality and existence as well.

We cannot think of a substance without some congeries of properties, nor of a property without some substance *of which* it is the property. This paper is white. I can think of it as of some other color, or, possibly, as of no other color at all, that is, as invisible, like the air we breathe. But I cannot think of it without extension and form, nor can I think of whiteness as existing without a substance, that is, without something that is white.

Cousin puts this point with his usual clearness and force. "Touch gives you the idea of resistance, of solidity. The other senses give you the ideas of other qualities. But what! Is there nothing but these qualities? While the sense gives you (the ideas of solidity) color, figures, softness, hardness, etc., do you not believe that they are the qualities of something really existing and which, because it really exists, is solid, hard, soft, of a certain color, figure, etc.? You would not have had the idea of this something if the senses had not first given you the idea of these qualities. But you cannot suppose that they exist in empty space. You cannot have the idea of these qualities without the idea of this something existent. This is the universal belief, which implies the distinction and the difference between the qualities and the subject of these qualities, between properties and substance." (Henry's Ed., p. 163.)

But this is just what the professed disciples of Hegel have done; they overlook the difference, or, rather, they deny that there is any, and make the ideas of things, or, rather, the properties of things, to be the real things themselves. And this is Hegel's idealism, and all through his works, as well as those of his disciples, whether professed or unconscious, we have a neglect of facts and the constant use of abstract terms where concrete terms are demanded by the logic of language and are indispensable to the understanding of what is said.

But it is easier to use abstract than concrete terms and, in the estimation of some persons, it is more philosophical. Concrete terms denote facts. But it is easier to neglect facts and deal with fictions; for the fictions are the creations of our own mind, and we can make of them and do with them what we will, and if nobody understands, it may result in our being credited with a depth or profundity which no common minds can understand, or, at least, common minds which have been trained in the English use of language and in the common-sense views of English-speaking people cannot understand.

As a specimen of his clearness I cite the following from what is regarded and declared by Sir William Hamilton even, to be a very "lucid" and "perspicacious" exposition of Hegel's philosophy (I cite from Chalebayus' Historic Summary) : "Each Ego attains for itself as an individual;" this "the magnetism of its fiction, and self-subsistence, and that, indeed, from other Egoes, and acknowledges the latter in turn to be its equals, or to be the counterpart or equivalent of self. This, then, is the *universal self-consciousness*, the positive knowledge of one's self in some other self; each of these selfs being a free individuality having absolute self-subsistence. All are consequently in and for themselves free in regard to action and self-consciousness: We have, in short, an atomistic plurality of Egoes, but all being alike and not qualitatively distinct in their natures from each other. It follows that they will now feel themselves to be an *universal spiritual substance.* With this sphere of consciousness is attained the *consciousness of the Absolute,* or the reason, and the reason is the above-mentioned substance or substratum of all subjects, the rational process of thought, which is itself the substance, i. e. the subject which contemplates and determines itself and is *the truth of all knowledge* in which being and thinking are no longer apart from each other: for being is no longer an object for the thinking process," but the thinking process is itself the object of the thinking process and, on that account, is called being. We thus arrive at the Aristotelian *υόησις τῆσ υοἠσεως* the self-thinking principle of thought, or the self-knowing truth, Absolute idealism, which in itself, is Absolute Realism." I have given the italics as in the outline.

If, now, one wishes to know what I think this means, I can tell him in very few words: "We get our knowledge of ourselves as free agents, by comparison and contrast with other things. But by this process we get our general ideas of human nature also, and by idealizing, leaving out (though Hegel does not say so) sins and imperfections we get our idea of the Divine Character and attributes, as well a Being who is both Real and Ideal.

But if Hegel's fundamental doctrine of co-ordination is correct, there can be no substance without properties, and the reverse, no properties without a substance; no matter or material object without mind, and no finite thing, whether matter or mind, without an Infinite something Who is not mere thought, or the thinking process, but a Person and adequate to all that mere inert matter or animals cannot produce, as well as to purpose and final cause in the Universe which man cannot be regarded as having produced.

It is but fair to say, however, that while principles laid down and established, as I think, beyond question or refutation, lead to these results, most of Hegel's own writings, and especially his Logic and his Philosophy of History, have been in the other direction, the direction of idealism and the principles stated a few pages back. Like Locke, his followers followed, for the most part, only one line of the developments for which he laid the foundation, and that was the worst line.

And thus extremes meet. The Agnostics, while admitting that there is a mind in man and that there must be a God in the Universe, relegate both of these realities to the realms of the "Unknowable" and declare that "the knowledge within our reach is the only knowledge that can be of service to us." (Herbert Spencer's First Principles, § 25.) They deny the Personality of God, the reality of miracles and, of course, therefore, the possibility of Revelation, or of any Religion that can be a means of salvation or a matter of personal obligation. All is matter and material objects that we can see and handle and that, so far as we are concerned, must perish with the using.

Spencer did, indeed, postulate "matter" as one of the requisitions to his solution of the Universe, and most of the later Agnostics ask for both matter and force. But the Hegelians ask for nothing but thought, "the conception," and I quote in conclusion, with an apology for its blasphemous character, the following from Dr. Sterling (the Secret of Hegel), as the outcome of Hegel's theory of knowledge, when applied to Religion: "Before Christ, God was (supposed to be) external to man, and worship or obedience to him consisted in external ceremonies. But since Christ, God is inward to man. He is our conscience. We no longer ask the will of God from *external* oracles, from *external* signs, but from our own selves *in the place of God.* We are to ourselves God. God and man are identified. In this way then, too, as in every way, Christ is the Mediator, the Redeemer, the Saviour."

And that is all. Scripture is of no authority. Miracles, in the proper sense of the word, never occurred. The Resurrection is but a myth, and facts, all the facts, of history, are to be disposed of according to a preconceived theory of what they ought to have been; they must have occurred in history as indicated by the laws of thought. History is but a development of thought—the thought that is developed in our own minds.

LECTURE VI.

REALITIES AND FICTIONS.

§ 1. In this, the concluding Lecture of the series, I propose to restate, in a summary way, some of the leading and most important points which seem to me to have been gained, with special reference to what must be regarded, as I think, as the present state of our theories of knowledge and of the extent and comprehension of what really comes within its limits.

We have seen that Aristotle distinctly recognizes (see Lecture II) the two sources of the elementary ideas and the activity of the mind in forming these elements into ideas, or notions, as he preferred to call them, of various kinds and grades of comprehensiveness. But he specially elaborated the doctrines and formularies of the processes of reasoning, and was known to posterity for many centuries chiefly, if not only, as the founder of scholasticism, "the knowledge" that prevailed in the Middle Ages.

Locke, also, as we have seen, distinctly recognized the two sources and very emphatically declared them to be the *only* sources of the elements of our ideas. But he devoted by far the most of his attention and the largest part of his work to the formation and development of the ideas of the first named class, those derived from sense-perception ; and he has been regarded as the founder of modern materialism and agnosticism.

Hegel taught the principles that lay the foundation for a most irrefutable ontology, with its three co-ordinate objects, or classes of objects—matter, mind, and God. And yet he gave himself chiefly to a development of his theory of concepts, or ideas, and is regarded as the father and founder of modern idealism. The one system of this expounder denies or, at least, ignores, the existence of God and a spiritual world ; the other denies or ignores the reality of any material world, and makes even spiritual things, God and the mind of man, to be only ideas—each one's own thought is all that there is for himself.

These, as I have said, are the two extremes of modern times. But there is a middle school founded by Reid and based chiefly on what he calls "the common sense" of mankind, which is, in fact, in one form or another, the system that is most extensively taught in our schools and colleges. Its most conspicuous advocates in our country are, perhaps, the two ex-presidents of two of our great colleges, President Porter, of Yale, and President McCosh, of Princeton. But for many reasons, already stated, this philosophy is not altogether satisfactory.

Not satisfactory, chiefly as I think, and, perhaps only, in the account it gives of the foundation on which its doctrines rest. If, however, Locke's system, *as I understand it* and am trying to set it forth in these Lectures, be correct and accepted it will not differ materially in the practical precepts which it teaches from those that are taught by the disciples of the Reid and Cousin school. But it will rather place them, it seems to me, on an immovable and perfectly satisfactory foundation.

There are two methods that may be pursued in discussions of this kind. We may start out with certain principles in religion and morals in our minds, which our philosophy *ought* to teach, and reason back to first principles, which, if adopted, will give solidity and foundation to those principles. The other is to start from facts or *assumed* facts, as first principles, and reason from them to conclusions. The fault of what I have called the Scotch school seems to have been their pursuit of the former method. And hence, its unsatisfactoriness to philosophers who prefer the other method.

§ 2. I think it settled, also, beyond further controversy or doubt that while there are no *a priori* elements of ideas or knowledge, there are *a priori* or intuitive *judgments* or axioms, affirming relations between these ideas, which are not only assumed by all persons who think and make assertions at all, but which are also readily assented to by all persons as soon as the meaning of the terms in which they are expressed separately, and one by one, is fully understood. Many men, like Plato, Aristotle and Locke, have expressly asserted and maintained this doctrine. But all men assume it and act upon it, not only as men, but as philosophers as well. Nay, even the most simple and elementary principles of their teachings are based on these axioms, as well as the more remote and abstruse deductions. These axioms form a part of our knowledge, which is absolute, and the axioms are seen, by their very nature, as soon as their meaning is fully understood, to admit of no exceptions here or elsewhere, now or at any time hereafter.

Our knowledge *of things* begins in the order of time with sense-perception. For it is doubtful if there is, or can be, for us finite beings, any consciousness without, or, rather, until after, there has been some sense-perception of an external object.

I think that Hegel's doctrine of co-ordination goes so far as this. In all sense-perception there must be the two—the co-ordination of the perceiving self, the ego, the I, and the perceived object, the not-me, or non-ego—the subject on the one hand and the object on the other.

But with the cognition of the one, the object, there comes the consciousness of the subject. And after this relation has been once recognized, it is not always or necessarily the case that we think of the two at the same time, or not of either. For the most part we perceive objects, with the eye, for example, with no thought of the eye, no consciousness of the sensations produced by the external object, and no consciousness, in fact, of the act of the mind in perceiving the object. Our thoughts, all of them, at least of which we have any recollection afterwards, are occupied in thinking of the object we saw.

And so it is in the other direction also with the observation of self, its acts and conditions by consciousness. When a sensation is painful we are conscious of the pain, think of it at the time and remember it afterward. So, too, if an act of perception, imagination, insight or memory is performed only with more or less of difficulty, so as to cost something of an effort, we are conscious of it at the time, far enough at least to remember it as an event in our personal experience after it has passed. But for the most part there is no consciousness of *self* in these acts and states of the mind at the time they occur, although there are abundant reasons from physiology and psychology for asserting that they did certainly take place, with all that their occurrence necessarily implies.

§ 3. In the acquisition of the elements of our ideas of natural things there are two of our sense-organs that are occupied with the process of perception in which our cognition of external things depends, that not only take the lead, but are, in fact, the foundation of all others, namely, sight and touch.

In this connection I take no notice of the most important difference that is known to exist between touch or the tactile sense in its more limited form or sense, and the general sensibility to pain, pleasure, etc., which exists in all the subcutaneous tissues, and especially the muscles. This is sometimes called the muscular sense. Thus, I judge of the weight of a body that is resting on my hand, by its mere pressure, or its resistance to my effort to lift it; its hardness by its resistance to pressure, and not by the mere sense of touch alone.

But we are never led to affirm the existence of anything external to ourselves by either of the senses, except sight, and touch taken in this broader sense.

If we hear a sound, we believe indeed that there is some sonorous body within hearing distance. But we never feel satisfied with the mere sound until we have found something that we can either see or feel, that has produced it.

So with an odor; we never doubt that there is something that emits it, and we often know by the peculiar character of the odor, what it is that has sent it out on the air we breathe. But we never rest content or cease our inquiries, when we care to pursue them, until we find something that we can see, or handle, or feel its pressure when we can get it into a condition to compress it, or at least to press upon it. This is especially the case with the gases, which are, for the most part, invisible to our eyes.

And I doubt if we should ever cognize or think of objects as external to ourselves, by sight alone, if we had not first cognized them by touch or the resistance which they offer to our efforts to compress them or remove them from the position they occupy. The experience of the cases, now several in number, in which persons who had been totally blind up to a certain period of their lives, say twelve or fourteen years, at least, and have been able by some surgical operation to see, both suggests and confirms this view. At first they had no idea that the things *they saw* with their eyes were realities external to themselves. As was said in regard to one of them, "he actually thought that everything he saw was in his eyes."

It is certainly worthy of special notice, in this connection, that these are the two senses, sight and touch, which, while giving us the objective properties of color and temperature, do also give us the properties of form and individuality, which are by no means relative.

§ 4. Hegel's doctrine of co-ordination helps us in a question that has often occurred to us—the reality of true perception. If there is true perception, it is admitted that there must be a real object that is perceived. And if we generalize this doctrine we have indisputable evidence, or certainty, of whatever is or has been really perceived by either sight or touch. And this will include all the objects in the material universe, all objects that are treated of by the natural sciences and of which we affirm, or have any reason to affirm, their existence as material objects; or nearly so, as we shall see by-and-by.

But is there any *true* perception? Is it not all like the images of our dreams and hallucinations, and like the false perceptions which we confessedly have in our waking hours? How shall we determine the question? Everybody, that is, everybody but a few philosophers, believes that there are true perceptions as well as false, and everybody, philosophers and all, believe that, in order to any true perception, there must be the reality of the object perceived. In fact, this is the *differentia* of true perception, namely, that the object is real, and present, and actually producing the sensations by which we perceive it. Whereas, in false perception there is no true object and the sensations are produced by some abnormal activity of the nerves or nerve-centers.

This point has been pressed with great and even irresistible force against the more modern philosophers who profess to be, or are unconsciously, of the Hegelian School of Idealists. The only difference there is between true and false perception, the test of the reality of the true, is the fact that in the one case there is and in the other there is not a real object that is perceived. Are there, then, the two classes of cases? It is like color and darkness to the blind, silence and sound to the deaf. If there were not both, we should have no idea of and no name for either.

Now Hegel's law comes to our aid. The two are co-ordinates; false perception and true perception. And they are a pair, as well. Like odd and even in numbers, there can be no third kind, so that if a number is not the one it must be the other. If, now, we take Kant's law, we can have no thought even of the one without the thought of the other. But if we take Hegel's law, or, rather, his view of this one, and the same law as Kant has stated it, it carries us one step farther and enables us to say that there cannot be the one without the other.

So with true perception and false. If there were not both, we should have and could have no name for either and no idea of either of the two kinds of mental acts and no question about them.

But, as we have seen, if there be true perception, then, whenever it occurs, there is a real substantial material thing that is perceived as the object of that perception.

And the knowledge we get of it by that mental act and all the mental acts that are true perceptions, is not only real knowledge, but it is, so far as it goes, knowledge of the thing itself—*ding an sich.*

But then, the opposite views, the view of Kant and of his followers, both in Germany and in this country, opens an immense field for fancy. And with all due respect to the names of many very earnest men who must be included in this class, I am inclined to think that this feature of that theory is its chief attraction for them. We have seen how, in the days of the most eminent Greek philosophers, the theory of Plato, which was largely a fancy and called fancy into conspicuous exercise, caught the minds of men and prevailed until we have the vagaries and incomprehensible systems of Neo-Platonism, while the more sober views of Aristotle scarcely secured a disciple, and were entirely overlooked and forgotten, until the sad experience of the Dark Ages and the absurdities of Scholasticism compelled men to fall back upon that very method of observation and the study of facts which has resulted in the marvelous attainments of modern science. This latter method is the slower and more tedious, but it is the sure one in the end. It is, in fact, the only sure method, and all men who are genuine lovers of truth must come to it sooner or later.

This law, as Hegel states it, is, as I think, but another form of the law of Excluded Middle as given by Liebnitz and recognized by the Scholastic Philosophy. Take the case above cited, odd and even in relation to numbers. There is no other sort, as a "middle" sort or species, in which a number may be found so as to be neither odd nor even. Hence, by Excluded Middle, as they call it, if a number is known or ascertained by direct observation, or any other means, not to be even, we need go no further with our investigations and experiments, or seek any direct positive proofs. We know by this law that it is odd.

Or, take another illustration. "*All* men are honest." "*No* men are honest." Here is not Excluded Middle, for there may be a middle proposition—"*some* men are honest"—while both of the two universal propositions are false, taken as they stand, that is, as universals. But if we have the two propositions, "*All* men are honest," and "*some* men are not honest," it is manifest, at sight, that they cannot both of them be either true or false. Hence, from the known truth of one, we can infer the falsity of the other. And, *vice versa*, from the ascertained falsity of the one we can infer, without further investigation or effort at proof, the truth of the other. What is known in mathematics as the indirect method of proof, is based on this principle of Excluded Middle.

I do not, however, intend by this to detract in the slightest degree from the merits of Hegel for discovering and setting forth this law.

§ 5. I have spoken of the elements of our ideas as obtained first *in the order of time*, by sense-perception, and afterwards by consciousness. But there are certain intuitive axioms which occur to our thoughts as soon as reflection begins, which, as Cousin has shown, are *first in the order of logic*. That is, they are presupposed in order, not to the mere act of sense-perception, but to the insight we may have and affirm of the objects themselves.

Of course we are all familiar with some of these axioms of a more general character, which are assumed and underlie, even if they are not always announced, all the sciences as they are formally taught. We usually have them announced in our works on Geometry and Algebra, and less frequently, though it sometimes occurs, in our Physics and Chemistry. These judgments are never, of course, elementary ideas, or the mere elements of ideas, not ideas at all, as Cousin maintains. They are affirmations of relations of things or the ideas of things.

I need not take time here to discuss the origin of these judgments. As Cousin has forcibly said, they are not innate, that is, they are not in the mind before any act of observation; for there are no innate judgments. Judgments, in fact, are not things in the mind. The word denotes primarily an act of the mind and thus it is used to denote the result of the act, as though the act created something that remains. The mind evidently affirms these judgments by its own insight into the nature of things as soon, for the most part, as any act of perception occurs, requiring them as a means of saying anything in regard to the object. They are thus and to this extent *a priori*. They are not like the judgments, "This paper is white," "This iron is solid:" for these last affirmations, or judgments, are based on the perception of the object and the concomitance of the subject and the predicate in the very act of cognizing the object itself.

These axioms, however, underlie all knowledge, all affirmation with *regard to things*. That is, all affirmations in which the subject is a concrete term, whether individual, general, or collective.

We have, then, three distinct sources of knowledge: (1) Self-evident axioms and reasoning from them, by means, not of facts or existing objects, but of definitions giving the nature of the things by their most obvious *essentia* or *differentia*. These axioms, as I have said, underlie, and are implied in, all the assertions and propositions we can make in any department of science or of knowledge. They and the reasoning from them, by means of definitions, constitute the whole of the pure mathematics as well as formal logic; that is, all there is or can be of logic without the consideration of language.

In the second place we have observation, or experience, and this is divided at the outset into the two parts indicated by Locke, (1) the *one*, sense-perception, giving us the elements of our knowledge of the material objects and facts that make up the material world, and (2) the *other*, consciousness and reflection, giving us the elements of our knowledge of mind and so of human nature, whatever we can know of human character, history, and whatever relates to the actions, opinions, hopes, and fears of men. It enters largely, also, into our Natural History as explaining or ennabling us to understand the instincts and actions of animals.

And, in the third place, we have reasoning. And in view of what has been said, I think we may name four fundamental principles on which the reasoning is based: (1) From cause to effect, but more frequently the reverse, from effect to an adequate cause, dependent on the principles of causation. (2) Aristotle's *dictum* growing out of the relation of subordination and comprehension. (3) Hegel's law of co-ordination and exclusion; and (4) the law of comparison and by means of comparative syllogisms of which I have given a brief account in the second Lecture.

But it has been suggested that mind and matter may be, after all, only one and the same substance under different forms. It is said that the difference in the properties, which we learn in these two ways, does not necessarily prove that there are two substances that are entirely different; but rather, two different states of one and the same substance. As an illustration and proof it is said that, as a matter of fact, we get entirely different qualities of the objects before us by the different senses, sight and touch, for example. By the one we get colors, as black and white, red and gray, etc. By the other, hardness and softness; temperature, as warm or cold, and moisture, as wet or dry. May not mind and matter, then, be but one substance under different forms of existence and activity? Descartes thought that extension was the *essentia* or *differentia* of matter, while thought, in his view, sustains the same relation to mind. But may not an extended object be a thinking substance as well? And may not the mind be extended, though invisible, diffused throughout the body, like air through the room, or ether throughout space? Can it be shown that extension and thought are incompatible? May not mere matter think, and may not mind be extended and diffused so as to occupy and fill all the cells of the brain and all the pores and fibres of the body?

I do not know that we can answer these questions either in the affirmative or in the negative. We have seen that water may exist in the two forms, visible and tangible in the one, and neither visible nor tangible in the other. When it rises from the lake we cannot see it, But it often comes into the form of a cloud or fog, and then we can see it with our eyes and feel it with our hands. May it not be so with the one substance, so that what we call mind and what we call matter may be, after all, but one and the same substance under two forms of existence and cognized in two different ways? The question, I say, has often been asked and the idea has been a favorite one with a certain school of philosophy and with minds of a certain constitution, from the earliest days of human speculation until now. But if it be so, it is not known as a fact, nor do I feel sure that it can ever be known for a certainty.

§ 6. We have seen that what Descartes proposed as differentia—"extension" and "thought"—are not co-ordinates and mutually inconsistent or incompatible, so as to constitute an Excluded Middle. But more recent times have led to another ground of fundamental distinction between the two. Matter is held to be inert, and mind to be spontaneous in its activity.

By inertia in this connection we do not mean absolute rest or inactivity, for recent investigations and speculations in physical science would seem to show that, whatever may have been the case at some former period with regard to "absolute rest *or* equilibrium," as Herbert Spencer calls it, there is now no particle or atom of matter which is absolutely at rest or inactive. Every particle is supposed to be active in the way of gravity, or attraction of distant masses. Most or all of them are also active in the way of chemical action. Even the atoms of oxygen and hydrogen that make up a molecule of water are still active in the way of affinity which prevents those atoms from separating into their formative gases again.

But what we mean is (1) that *if* any particle, mass or molecule is now at rest or not in action, it cannot *of itself* start into a state of motion (mechanically) or into a state of action (chemically) without the influence and agency of something else acting upon it. And (2) if any particle or piece of matter is now in a state of motion or activity, it cannot, *of itself*, change the rate of its motion or the intensity of its action, without some action or change in something else, so as to act upon it, or allow other causes to act which are now kept from acting by some other cause than this particle or piece of matter itself. And this is held to be the law and condition of all mere inorganic matter. And all science is based on the idea of inertia in this sense, as an inseparable character—the very differentia of matter.

I say this is the foundation of every statement we can make in the department of the physical sciences: the laws of motion in Physics and Astronomy, the laws of analysis and synthesis in Chemistry assume it. If atoms and molecules could skip about at will, as the frisky child does, we could prescribe no law to its motions. If in Chemistry the atoms of the elements could unite and disunite as thoughtlessly and as capriciously as our children and youth do in forming their friendships and antipathies, we could have no science or knowledge of Chemistry.

On the other hand, mind is supposed to be spontaneous, which is the direct opposite and contradictory of inert in this respect. So far as the testimony of consciousness goes, we do sometimes start from a state of inactivity and rest, and we do *begin* to act voluntarily, of our own selves, that is, spontaneously. And not only so, we can accelerate or retard our movements at will.

We have a direct consciousness of this spontaneity of action in ourselves. Everybody thus knows—as well as anybody can tell him—what it is. Every body believes in it and acts accordingly, whatever may be his metaphysical questions about it, whatever he as a philosopher may have professed to believe.

Moreover, I think Hegel's law is applicable and prevails here. Spontaneity and inertia in the sense we use the terms are co-ordinates, and a pair as well; so that what is not inert is spontaneous in its activity, and conversely, whatever is spontaneous, is not and cannot be inert. The one is virtually, though not verbally, the negative of the other; consequently by that law there must be two corresponding realities, or classes of realities, the one inert and the other spontaneously active. And by Locke's doctrine with regard to the origin of elementary ideas, examples of one at least of each of these classes of objects must have been immediately cognized by us.

Doubtless the contrast or difference does not become a matter of thought and question, or avowed belief, until after there has been a good deal of reflection on the subject; that is, we do not exactly see what it is, until after much philosophizing about it. But the merest child knows that there is a difference. He can get up and run across the room. This he knows. But he knows also that his toys cannot do so—that they will stay where he leaves them, and as he leaves them, unless somebody takes them away or moves them out of the position in which he left them.

I believe that the doctrine of the inertia of all mere matter was not distinctly conceived and started until the time of Newton and Leibnitz, when the physical sciences were being established on their proper foundation. Unless, then, there had been the two, spontaneity and inertia, and something that is inert as well as something that is spontaneous in its activity, which is what we mean by freedom of will, and if examples of both kinds had not been actually and immediately cognized, there could have been no idea of either, the one or the other—inertia or spontaneity—and no name for the one or the other, any more than there would have been thought of or names for light and darkness, silence and sound, if all the world had been blind or deaf.

But we have another proof. In the efforts which have been made to discover the rate at which the nerve currents pass to and from the brain, a proof of this point has been quite unexpectedly reached, that is of a different kind, and will, to my mind, be of a much more satisfactory character. The one we have given may be regarded as metaphysical; the one I am about to give is physical.

Suppose, for example, we take the well-known case of the electric spark. If one takes the wire in his hand and the electricity is set in motion, the current passes up the arm to the gray matter of the spinal cord; there it is transformed in character by that gray matter and returned down to the muscles of his arm at the rate of about ninety feet per second. But if in order to get a longer circuit we touch a man's toe and tell him to make a sign with his finger as soon as he feels it, the current must now, following the course of the nerves, pass up the whole length of the body to the anterior lobe of the brain, and then down again so as to go out at the hand and to the end of the finger that is to give the signal. But there is no complete circuit in the case, as there was in the case of the electric shock to the hand. It is like a telegraph line; if it goes across the continent from New York to California, say for example, and there winds around an insulator and comes back, we can send a message to California which will come back to us at once, with just and only the time needed to go across the continent twice. But if there is no insulator, then the message must be received there by an operator, taken off and re-written. This will of course take time. And not only so, but the operator can take his own time, or even delay and neglect or refuse to send it at all.

Now, just so with the nerve current in the case we are considering; there is no circuit between the foot and the hand; and the message has to be taken off, as we say, and repeated; that is, the subject of the experiment feels the touch of his foot, is conscious of the sensation, and must exert an act of volition before the finger will move to give the appointed sign. And this takes time. And not only so; but "the operator," whose seat is, in this case, in the brain, can take his own time, vary it at his will, or even neglect to raise his finger and give the sign at all.

But this is not according to the law of inertia. In that case not only are action and reaction equal, but they follow upon each other instantaneously. There is and can be no delay. When the shock is given, as in the case just supposed, the jerking of the hand comes at once, and involuntarily so far as we are concerned. We cannot take our own time, consult our own convenience in the case, or neglect to jerk the hand altogether.

Here, then, we have a most manifest and indisputable proof of the difference between spontaneity and inertia, and also of the fact that there is something in the brain and acting there, that is spontaneous or acts under the law of spontaneity, which is directly the reverse of that law of inertia which we see observed everywhere in inorganic matter.

Nor does the brain itself obey in its reflex action a law different from that which we see obtains everywhere else in mere matter. In the case of its own reflex actions, it obeys the same law as the spinal cord, for instance. Thus, the involuntary laughter, the outcry of grief or weeping which comes at the sight of, or on hearing the announcement of, something witty, ludicrous, or sad and distressing, are, for the most part, involuntary and come without the delay that we can impose upon whatever we do voluntarily, and in regard to which we can take our own time or omit it altogether.

Now, call this which acts in the brain and upon the brain, mind, or what you will, it is undeniably manifest that it is something that is both substantially and essentially different from the brain itself, in the present state of existence and order of things, and we call it mind.

We have, then, the two, mind and matter, essentially different, the one acting under the law of spontaneity, and the other acting always and everywhere, so far as we know it or know *of* it, under the co-ordinate law of inertia. And of the objects in the one domain, we cognize and have whatever we know or can know of their primary or objective properties, by the sense-organs and acts of sense-perception, and of the other we obtain all the elements of our knowledge by consciousness and reflection upon the acts and states of our own minds.

We come back again, therefore, to our second point, namely, observation in its two-fold aspects, sense-perception and consciousness. By the one we get our material for the Natural and Physical Sciences, and by the other we get our material for the Mental or Psychological Sciences, and by the two, the Mixed Sciences, as history and such other sciences as relate to man and animals considered as sensitive, if not rational beings, and our Natural Theology also.

But from one or the other of these two sources—sense-perception and consciousness—come all the *elements* of our ideas of things; and the ideas of things themselves the mind makes out of these ideas, (1) out of those that come from sense-perception, all our ideas of purely material and inanimate objects; (2) from those that come by consciousness, all our ideas of mind and purely spiritual beings, and (3) by a combination of elements derived from both of these sources, our ideas of animals to which we ascribe some degree or kind of intelligence.

Our ideas of *things*—to whichsoever of the three classes just indicated they may happen to belong—are *complex*. Hence, we can always analyze them and *define* the thing which they represent—define it, I say, by giving its essence, or nature, as well as *describe* it by telling where it is, where or how it occurs and what are its relations. But our simple ideas, that is, the *elements* of ideas, we cannot define; we can only tell where they are to be found, when they occur, and where we may get them by actual observation and cognition (if we have the organs and means of cognizing it) of some object to which it belongs as a property. We cannot define *whiteness*, but we can tell any one where and when he can see something that is white. We cannot *define* the act of perception, but we can tell any intelligent human being where, when and how it may occur, and thus put him into the way to get an idea of the act, if he has it not already, or does not happen to know what we mean by the word.

And there is a very important inference from this fact that is specially pertinent to the matter we have in hand.

As we can analyze our idea of any object and thus define the object, so we can deny the reality of that object. But, as we cannot originate any one of the elements of our ideas and can get them only in the act of cognition of some object of which it is a property or mode, so we cannot deny the reality of the object of which it is the property or mode.

Thus, as we cannot define whiteness, so we cannot deny that there is something that is white. As we cannot define the act of perception, so we cannot deny that there is something—call it mind, or what you will—something that perceives. So, too, as we cannot define the simple act of volition or choice, we cannot, even if we would, deny that there is something that chooses. And as perception and choice are not (supposed to be) acts of mere matter, we ascribe them to something that has none of the properties of matter and call it mind, or soul.

§ 7. Then, in the third place, we have the great department of reasoning from observed facts considered as effects to objects, that are beyond the reach of our cognition, which are their causes.

Leibnitz had insisted that whatever is conceived of as a substance, must also be considered as a cause. But it was Cousin, so far as I know or remember, that in modern times first made the doctrine that we know all things as causes and as causes only, and all our knowledge of things, including direct observation, depends on the law of causation, or the relation of cause and effect.

We can see the truth of this doctrine in the case of immediate observation of the two kinds, sense-perception and consciousness, by a moment's reflection and analysis. We can perceive external things only as they act as causes in producing within us those sensations by which we perceive them.

In sensation, it will be remembered, we are passive, while in perception the mind is active. And as external objects act upon the sense-organs, producing sensations, we perceive the objects. It is true that, although the act is involuntary, that is, we can neither produce it without the object thus acting upon us, nor prevent the act of perception when the object thus acts, it is still a mental act. And I believe it is the only one, except consciousness, that is thus wholly involuntary and beyond the control of the will. We can direct the imagination, the reason, the memory, and the will, each and every one of them to a large extent. But the act of perception is beyond our control, whenever any external object acts upon our sense-organs in the normal and appointed way.

So, too, in consciousness. We are conscious whenever the mind acts, but it must act as cause or agent in producing those states of activity which Locke more especially noticed as "its actings," perception, thinking, reasoning, remembering, doubting, willing, etc. And in the passive states, as feelings of praise, admiration, etc., the causality may, perhaps, be divided between the two, the external object that caused the feelings, and the mind itself in so directing our thoughts that by imagination or recollection we reproduce the feelings we once had. But at any rate we cognize the mind only as it is active and acts as cause in producing those states or changes in its states which we call perceiving, remembering, reasoning, willing, etc., by which we know it to be mind within us.

But this is only the first step. The second step is that of reasoning from the observed facts to facts and objects that do not fall under our own immediate observation.

And here a very important distinction must be made and carefully noted. Causation may produce (1) either a new thing, or (2) only a change in the condition and mode of existence of things that are already in existence and were so before the act of causation took place. In the former case we have an act of creation, which neither man nor the objects in nature are supposed to be able to perform. God only, as Creator, is capable of producing something that is new, or doing anything more than changing the mode of existence in the things He has to work upon. This distinction is important. And thus we have in nature and in human activity only the production of changes in the form of the materials that either we or it have to act upon.

Whenever we see anything, by direct observation of either of the two kinds so often named, and see by observation, insight, or otherwise, that it has not always existed as it is, although it may have existed in some other form or mode, we know it, or rather its present state, to be an effect which must have had an adequate cause.

§ 8. Few people are probably aware how much of what we think we know has actually been obtained in this way and on this principle of causation rather than by direct observation. Doubtless it depended on observation at first, but then it was the observation of other persons than ourselves.

I have shown in a former Lecture (II) how we derive a large share of the details of all the sciences as well as the practical precepts by which we apply what we know by deduction from general principles. But what I am speaking of now is reasons from cause to effect and the reverse from effect to cause.

When I look at the furniture of this room, for example, I know that there is not an article of it that has always existed where it is and as it now is. And I do not believe that God Himself was the creator of any one of the articles as it now exists. But they all show intelligence and purpose in their immediate causes, that is, the men who made them—I say men, for if their present condition and shape show intelligence and design, efficient and final cause as well as material and formal cause—then of course they must had some human being as their cause. For one class of these articles I refer to a cabinet-maker, for others to the workers in iron and other metals; and for the carpets and drapery, I refer to the weaver. And then back of these there must have been lumbermen, miners, machinists and farmers, each of them with his measure of physical strength and acquired skill, in order to be not only causes, but causes adequate to the production of what I thus see around me in my room.

If, however, I want to trace any particular object to its individual cause, the man who made it, I must in most cases go beyond the proper range of science and resort to its history and avail myself of the testimony of others. But in some cases the work will bear such marks of its author that there can be no mistake. Thus it is claimed in regard to works of art, paintings, sculptures, architectural structures, music, poems, etc., that their authorship can be discerned and clearly demonstrated by marks and characteristics that are inseparable from the works themselves, at least in the case of the greatest geniuses that have blessed mankind with the production of their minds.

In Science also we are dependent on this method and this principle. Take the case of Geology alone —the Geologist can examine the earth *as it now is.* But he finds evidences of changes everywhere, that go back beyond the possibility of human testimony and human observation. He infers an accumulation of ice and an ice age, of whose reality he has no more doubt than he has of the existence of the Andes now, or of the earthquakes of Calabria or of Lisbon, or even of that of Charleston in 1886. And he goes back to that period also and finds evidence of periods of greater heat than we have now in high latitudes, of a greater amount of carbonic acid in the air than is consistent with the forms of animal and vegetable life that exist now around us. And far back in time beyond this he finds, as he thinks, evidences of a very high temperature of the earth and, most likely, a state of gaseous diffusion, where none of the chemical compounds that make up the materials, vegetable or mineral, that now constitute our surroundings, were thus united.

And this raises the question of an Adequate Cause. Had the atoms of matter at that time and when they were in that condition, the properties which they are now supposed to have? Were they at rest—the absolute rest of inactivity? If so, who or what set them in motion? What started them out of their state of "*rest*" and set them in motion towards the centres, or perhaps towards several centres, in the way which we now call gravitation? And what or who gave them their powers of chemical affinity and combination, so that by their mutual actions upon one another they might become luminous with light and heat, or electric and magnetic with forces for which we have, perhaps, no name? Who or what started them from a state of rest and inactivity, into motion and chemical combinations?

Or were these atoms only in a state of *equilibrium?* If so, it must have been very "stable," for science knows of no time or period back of that when, even if they were in existence, they could have been in any other condition. And if they were not in existence, Who created them? Or if they were, Who interfered to disturb that equilibrium and set them in motion, thus beginning the evolution?

In either case an Adequate Cause is proved to have existed and been active in the work. Philosophy not only thus brings It or Him into existence, but into the range or domain of knowledge as well, on the principle which is thus seen to be fundamental to, nay, the very foundation of all our knowledge.

And in either case, whether in the state of absolute rest or in that of a most stable equilibrium, the cause that could have started it into motion could not have been inert, and consequently not matter as we now know it. If the atoms were then created, who created them? Who was their creator? If they were at rest, who gave them the properties they now have, or set them in motion, so that acting as causes on our sense organs, we can perceive them; and acting on each other, they form the mineral and vegetable compounds, or the rock and mountain masses and even the planets and stellar orbs that seem to fill the space around us?

Or, finally, if they were in a state of equilibrium, who interposed and brought them into such a state of proximity that the action and motion that make up what we now call the "forces" of nature, light, heat, electricity, gravity and such like, could show themselves to be true kinetic forces, and not the mere latent fictions which our imaginations sometimes create to cheat our understandings, and call latent forces?

I say this Cause, on any one of these three possible hypotheses, must have been a spontaneous Person. It could not have been mere inert matter, for inertia was the one great thing to be overcome, the one great obstacle to the bringing of an evolution, or a system of evolutions, in the Universe. This Cause may have been "extended" in accordance with Descartes' *differentia* of matter, extended and diffused, so as to be omnipresent by extension and diffusion throughout all space, rather than by that divine method incomprehensible to us. But He could not have been inert as all matter now is, for then there could have been no creation and no beginning to evolution. He must have been free and spontaneous in the nature of His activity and so spiritual in His nature and a Person.

It is sometimes said, as if to obviate the force of this argument, that we cannot stop here; reason and philosophy as much demand a cause for this so-called First Cause as for any other.

But this is to mistake the whole ground of the argument—the very first and fundamental principle on which it rests. The quest after a cause arises only as, and when, we have seen an object *to be an effect.* In the case of the First Cause that is found by this process, there is no such indication or proof—nothing to lead us to seek for Him any cause. And hence we call Him the First Cause—the Uncaused Cause of all things.

§ 9. Let us now take a case from human history. The surface of the earth bears almost everywhere marks and traces of a population earlier than that which now inhabits the place where these remains are found. And in some cases these remains indicate a succession of races, one following another in the same habitation. But how do we know that they are the works of human hands and human art? It is clearly by regarding them as effects that must have had a sffiucient and adequate cause; a people sufficient in point of numbers for the work, and adequate in point of skill, their knowledge of the arts and sciences, to have produced such works. And we judge that there must have been two or more successive races, if that were the fact in the case, by such differences in their works as to imply two different races as causes that would be adequate by their difference to the kind of works so unlike as those we find and attribute to them.

And in this way some of the most interesting and important knowledge we have, or are likely to get, of the early history of mankind, has been obtained. And we may add that the indications of the early history and condition of mankind, which have been obtained in this way, have gone far to change some of the theories which men had been inclined to hold in regard to it. We find evidence of an intelligence and a purity of morals and arrangements of domestic life quite unlike what has been sometimes assumed to have been man's primitive condition and which, it was asserted, we find most fully illustrated in the lives and conditions of the lowest savages of our time. But we find, on the contrary, that the savages must have changed in the course of the ages about as much, if, indeed, not quite as much, in the way of degeneracy and degradation, as the more highly civilized and refined have advanced from that primitive condition. It seems that they were more like innocent, inexperienced children, than like either the savages we find in the most degraded of conditions, or the most highly civilized and refined population of our most advanced nations.

I need not refer to, and I have not time to consider, the disclosures in Egypt and Babylonia which have recently thrown so much light on the earlier stages of man's history.

Or take another instance. We have a religion called Christianity. It is a part of the world's history; as much so and as conspicuous, in fact, as the coal fields of Pennsylvania, or the Rock of Gibraltar. But what was its origin, its Adequate Cause? I take up a Book, *the* Book, or Bible. It claims to give an account of its origin and, after admitting all that the most adverse criticism has shown or claimed to show to its disparagement, I find that it accounts for the origin and force of this religion by referring to the life and teachings, nay more, to the crucifixion, resurrection from the dead, and ascent into Heaven, of its Founder. The cause thus assigned is sufficient. But is there any other that has been, or can be, assigned that can be regarded as at all adequate to such unprecedented results in the world's history?

But back of this there is an older Religion and there are books in the Bible that claim to give an account of its origin. Did Moses live? Did he write the Pentateuch? Did he work miracles? Was he inspired? Make all the allowances which a fair criticism can demand of us, and the question still arises—not now with regard to the miracles he is alleged to have performed, nor yet as to the truth of the doctrines he taught, or even the excellence of the laws and institutions which he put in force among the Hebrew people, but the question *now* is with regard to his knowledge of "the beginning" of things in this mundane sphere. Was he, simply as a man of learning and genius and without inspiration, adequate to such a result?

I take the facts in regard to this event as ascertained by the investigations and discoveries of modern science; and I accept them as undoubtedly true. I see that Moses, as the author of the book of Genesis, does not use the same phraseology as our modern scientists, and he could not have done so. The terms and phrases we now use were not in existence at that time, and no language then used by man could have furnished them. But, taking the idioms of that early Hebrew and our own modern dialects into account, and making due allowance for them, I find a wonderful agreement. Nay, I think there is about as much agreement, both in fact and *in language*, as there would be to-day between two statements made *by the same man*, the one for scientific men and for scientific purposes or to a class of students, and the other to a popular audience of uneducated people, and for the religious purpose of asserting the unity of God, the fact of the creation of the world by Him, and that, too, not by one instantaneous *fiat*, but as men do things, in a measure, in order, and with a succession of stages in its progress.

Now, the question is, how did Moses get this knowledge, these ideas, of the processes of creation, or evolution, if we choose to call the process by that name? If I turn to the "cosmologies," as they are called, of those times, I find them in many respects unlike the Mosaic account, and totally inadequate as a resource from which he could have drawn the statements he made. We know those early accounts of the origin of the world pretty well. The old Accadian, the Shemitic Assyrian, as well as the Egyptian beliefs and teachings on this subject, are pretty well known. And it is manifest that it would have taken more genius than any one man ever possessed, to deduce the elements of this account from what is contained in any or all of them, and to have put those facts into the order and simplicity of statement he has given us. Of course there is no pretence that Moses, merely as a man of science, could have *discovered* them, and, in that early age, so far anticipated what all the world have regarded as newly-discovered facts and truths, as to have written this account as a matter of scientific information. Moses, therefore, as a man, whether as a poet under the inspiration of genius, or as a scientist with pickaxe and alembic, could not have written that account. Nor could anybody else have done so without supernatural aid in that early age. Mere man was not then an adequate cause of what unquestionably occurred. No man without the inspiration, guidance and aid of some higher Being, could have written that account of what occurred millions of years, most probably, before any human being could have been there to see and act as an observer and report what he saw, for our information. The conclusion seems to me inevitable. And the inspiration, the supernatural inspiration, of the early chapters of the Book of Genesis seems to me about certain and as well proved, and that, too, on the same principles of observation and reasoning, as the certainty we have of an ice age that gouged out our valleys, or a carboniferous period, in which grew the material of our coal fields. The origin and existence of the one is as certain as the other. And I think that the Book of Genesis furnishes as much proof of the inspiration of the author, as the ice age does of a cold such as we are not accustomed to see in our day, or as the coal beds do of a heat and an amount of carbonic acid in the air which would render lives like ours impossible.

§ 9. We have, then, three departments or classes of objects within the range of our knowledge: (1) *matter*, or, rather, the objects in the material world; (2) *mind*, the minds of others with whom we may be acquainted, or of whom we may acquire knowledge; (3) the One of Whom we know by the principle of causation, or the One First Cause of all things, and Who, to be adequate to the effects He has produced, must be an intelligent, Personal Agent, acting according to the distinguishing characteristics of personality—spontaneity and thought, with motive and for a purpose—yet freely and from His own motives and choice.

Under the second head I include, for the present, only human beings, and not animals; for, in the present state of our knowledge, it is doubtful whether there is in them anything more than mere reflex action which, if not of a purely physical or mechanical nature, is at least of a physiological nature and does not imply mind; or, if they have minds we shall put them into a middle group, and apply to them the ideas of intelligence and feeling of which we get the elements from a consciousness of what we experience in ourselves.

Nor do I include in this enumeration any unseen spiritual beings besides the One, whether angels or demons; for, as a matter of scientific knowledge, I think we have no such manifestation of their existence, whatever we may believe or affirm concerning them, on other grounds.

Now, note the fact that any name we may give to *any one* object in either of these three groups or departments will be a proper name, and, therefore, of necessity a concrete term. Or if we speak of more than one as a class, or species, or genus, or variety, the word we use will be a common noun, or a general term, in the logical designation of terms.

I have had occasion several times to speak of the logical quality of terms, and it may be well to say a few words more now in the conclusion of our subject.

In the early discussions, all names were regarded as either (1) concrete, (2) general, or (3) negative, In this classification no names were regarded as concrete that did not denote a single individual object which was visible and manifest to the senses. It might be either a proper noun, or a common noun with some such qualification as "this," "that," or such like. Negative terms were considered to be indicated by their form, as *in*finite, *un*believing, etc. And general terms were thought to include all invisible things.

But in the progress of discussion we have found it necessary to make of the second class, two classes and distinguish between *general* terms in their proper sense, as *de*-noting, or, as is sometimes said, *con*-noting, many individuals, making up a class without making any distinction between them and *abstract* terms which *de*note only some property or mode of objects, and can scarcely be said to *con*nate or imply anything.

So, too, we distinguish between negative terms and privative. Negative terms denote nothing. They simply deny, or imply the absence of the property denoted by the adjective in its positive form. But privative terms denote a species or class of objects by the absence of some property which they would have in their normal condition, as blindness, or the blind, etc.

Hence, in one very important classification, words in regard to their logical quality are either (1) positive, (2) negative, or (3) privative.

But in another and perhaps still more important classification, all terms, or, rather, all positive terms are either (1) concrete, or (2) abstract. And in this classification we must include among the concrete terms not only individual and general, but collective terms as well, such as church, nation, congress, legislature, etc.

These three, then—matter, mind, and God—are within the reach and domain of knowledge, and each one of them is as certainly known to be a reality as the other. The certainty of the existence of each is, as I think, absolute. We may know more of the objects in the one class, than in either of the other two ; but the certainty of their existence is as great and as absolute in the one case as in the others.

But in the order of fact and in the varied experience of men, most people know more of the material world and its objects than they do of their minds ; and more of each and both of these objects than they do of God. And men of different mental constitutions will differ in this respect. There are men, *practical* men, of the class of Aristotle and Bacon, who know a good deal more of the material things around them, than of either their own souls, or of God, their Creator and final Judge. In fact, their knowledge, what they have, is so exclusively of these things that they can see and handle, that they think they have no knowledge of anything else, and would limit the word, knowledge, to such subjects ; all else seems unreal and delusory. Others there are who seem to be so occupied with their own minds, their thoughts and feelings, that they scarcely seem to know anything else, and mind, or, rather, thought and ideas, seem to them to be the only reality. Of this kind are Plato and our modern Idealists. And there are a few mystics who devote themselves, body and soul, so much to thoughts of God and acts of devotion, that for them He "is all," as well as "in all." They feel more sure of His existence and presence than of the existence of anything else—even their own souls or bodies.

Men begin to get their knowledge of material things as soon as they open their eyes on the things around them. And, naturally enough, it seems in the first stages of their existence to be the most certain of all, if not the only thing that is certain. Their knowledge of themselves, their minds, they begin to get only at a later stage, and much of it is learned from books on Mental Science. But their knowledge of God is, for the most part, communicated to them by their teachers and pastors, and partakes, therefore, necessarily and to a large extent of the doctrines of Revelation and the dogmas of the church to which they happen to belong.

But the three are realities—the outward world, the inward mind, and the ever-existing God. And of each there is a proper and appropriate branch of Knowledge. Physical Science for the one, Mental Philosophy for another, and Natural Theology for the One, Who is over all and before all—God, blessed forever.

And these three indicate the limit of knowledge or science, properly so-called, that is obtainable by natural means. If there be other objects or beings—objects or beings not included in one or the other of these three categories or classes—they must be objects of revelation, and what we know of them, even the fact of their existence, must have been revealed to us from some Being Who has means of knowledge that have not been vouchsafed to us. In this category are, of course, angels, demons, and the arch-demon himself. Their existence is and must be with us during this life a matter of faith; it cannot be a matter of knowledge.

§ 11. But besides this world of reality—the objects that God has made—we have a world of fictions of our own make.

In order to be better able to discriminate facts from mere fictions it will be well to give another class or series of tests founded upon and derived from the logic of language.

In Grammar we have the Rules of Syntax by which we are taught how to combine words so that they may make that collective whole which we call a sentence.

But, besides this, there are certain rules of the Logic of Language which let us a little more deeply into the thought of the author or, at least, indicate to us some things that lie beneath the thought that is expressed by the sentence, that the mere Rules of Syntax do not disclose.

Language is, in more respects than one, like music. I suppose that there is no sound of the human voice that may not be regarded and made a note in music and put into such relations to other sounds that there will not be both melody and harmony.

But however this may be in regard to music it is certainly the case in regard to language. There is no sound that may not be made a noun, the name of something real or imagined, that may be made the subject of conversation.

And so, too, if the words are put together in conformity to certain rules of Grammar, making what we call orthography, there is no one word or sound that may not be so combined with others as to make a sentence.

Now, in music there is, properly speaking, no *thought* expressed. It arises from emotion or feeling and excites *emotions* or *feelings* of various kinds, according as it belongs to one or another of the well-known classes, as dancing, martial music, devotional, patriotic, etc. And it will, too, suggest, or, rather awaken thought in us, the hearers, each according to its kind, although it is quite likely that they are not at all the thoughts that were in the mind of the composer of the music, or are now in the minds of those who perform it for our hearing.

And words that are arranged according to the laws of Grammar may do precisely the same thing; they *may* be so selected and arranged as to produce in the hearer or the reader precisely the thoughts that were in the mind of the speaker or the composer. But then, they *may* be so selected and arranged as to fulfill every requirement of Grammar and Rhetoric, too, and accomplish only what the notes of music accomplish for the hearer. They set us to thinking, doubtless; but then, the thoughts they excite in us are our own, the creations of our own fancy, and by no means a reproduction of the thoughts of him who composed the sentence—if he had any.

The fundamental facts are, (1) that names of whatever class, indicate the things that we are speaking about, and (2) all the other words are used merely to indicate the relations that exist, or that we affirm to exist, between the objects denoted by the names. "This paper *lies on* the table." "Birds *fly in the air with the use* of *their* wings," etc.

The second law is, that in order that a sentence may be intelligible, the other words must indicate a relation between the things that are spoken of, which we have seen existing between them or can suppose to exist.

Of these laws I will specify four, as all that we need to consider for our present purpose:

(1) If the verb is simply "is" or "are," the predicate must be either (1) a synonym of the subject, (2) an adjective denoting some property of it, or (3) a common noun denoting some class in which the subject is included.

(2) If the verb be *active*, anything, in fact, but the verb, to be, the nominative must be a concrete term, since it denotes (*a*) a substance that is in the mode indicated, as, John sleeps, or is sleeping; or (*b*) a cause that performs the act, as, John runs, Peter strikes, Birds fly.

(3) When the verb is *transitive*, the noun following it must be a concrete term to denote a substance

acted upon, as, John makes a *table*, etc. The only recognized exception to this rule is the case of what is called "cognate accusatives," in which the noun is cognate to the verb itself, as, to fight a battle, to win a race, etc.

(4) In all cases of nouns that are connected by copulative conjunctions the nouns must be *of the same logical quality*, that is, if one of them is concrete, all must be so, and if one of them is abstract the other must be so.

Language, in conformity with these rules, is most strictly literal; all else needs some transformation before we can eliminate the fictions from the facts.

The only departure from these rules that we need now to consider arises from the use of abstract terms denoting mere properties and modes of things, instead of concrete terms that denote things themselves —by their properties. These departures constitute what is called by the writers on rhetoric, metonomy or metaphor.

§ 12. We see a conspicuous illustration of this last rule in the statement: "Water is composed of oxygen, hydrogen *and* fluidity." It is composed of oxygen and hydrogen and it *is* fluid; but *fluidity* is not an element in the same sense as the oxygen and hydrogen are.

Plato's postulate in his *Timæus* offends against this rule, "matter," generation," and "place." Generation is a process—with Plato the process of passing into specific forms, and this must be in some place.

In the same way Herbert Spencer's postulate (First Principles, c. v.) offends against this law. He asks for the five, Matter, Motion, Force, Time, and Space. But motion is abstract. Matter *in motion* moves *with force* and is, in a sense, force, and if it moves it must move somewhere, *in space*, and at some moment *in time*. Hence the only real things that he postulates is matter in motion, or moving matter.

Hence the more recent speculators in this department usually postulate two primordial elements, Matter and Force. And in this connection "force" must be something that is of an immaterial nature, or, in other words, is not matter. But if it is not matter and is a reality, a real cause or agent, it must be spirit, as we know only the two forms of substantial existence or causal agents. What we call gravity, heat, light, electricity, etc., are now recognized as no substances or real causes, but only as "modes of motion."

We can always eliminate the fiction and find the fact by the application of the following rule:

(1) Put the noun into its adjective form and then place after it any name which the nature of the case supposes, or will allow; and if the meaning of the sentence remains the same as before, the noun is concrete; otherwise it is abstract.

We will take two cases for illustration. We say, for example, "heat comes from the sun," "heated or hot things come from the sun." Clearly, this is not what we intend to say. Then we have, "heatedness" or "hot" is a mode produced by, indeed, as we know, but not a thing, that comes from the sun.

Again, we say, "the mind thinks." Make the changes, "the mental substance thinks." This is just what was meant by the proposition in its other form and was, in fact, the better form of the two.

As an illustration of this method in violation of the fourth rule we may take the following: An author, whose work I have before me, says, "that in the earliest geological times we must recognize three forces or agents as especially at work and active—water, heat and pressure." Now, "water" is a concrete term. For heat we may say, heated objects around and acting upon the changing mass; for "pressure," we have "heavily pressing masses" resting upon, etc. But this statement of our author is undoubtedly a condensed and forcible way of stating the fact or condition of things at that early time.

But there are cases in which the rule eliminates the fiction indeed, but it leaves the sentence without meaning; wherefore we apply another rule.

(2) Suppose the abridged form to be not a metonomy, but, rather, a metaphor, which is, therefore, an abridged comparison. As, for example, "Washington is to his country as a father to his family;" whence we speak of Washington as "the father of his country.

Take, for illustration, "Sound travels at the rate of 1112 feet per second." But sound does not *travel;* it has no feet. Neither does it "*swim,*" or *fly;* it has neither fins nor wings. Shall we say, then, "sonorous," or "sounding" bodies move at the rate of 1112 feet per second? Everybody sees that that is not what we intend to say. But what we do intend to say is, that it is the same in the observed effect as if there were such a thing as sound, and it moved by traveling, or some other way, at the rate specified. But what is sound? Perhaps we do not know. What is light? What is heat? What is whiteness? Perhaps we do not know. But we speak of them as objects, or as active causes, when we wish to speak of certain observed effects, the cause of which we do not yet exactly know. Nor do we fully understand their mode of operation, if, indeed, they are real causes and have any modes of operation at all.

§ 13. The use of abstract terms, then, in ways and places where the above four rules, or either of them, requires concrete terms, in order to the perfect intelligibility of the causes, falls under one or the other of two classes of cases.

(1) In the first case the abstract term is often used for a general term. As when we say, "humanity repudiates such a sentiment." Here, clearly, we want to say, all men, and because they are men, and on account of this very humanity, repudiate, etc. The expression is not only rhetorically good, but it is excellent, graceful and emphatic.

But take another case. "History teaches," etc. Here it is doubtful what is meant. Do we mean to say that "historians," the writers of history, teach so and so? Or do we make a fiction, a sort of goddess, like those of ancient mythologies of the Aryan nations, who in her capacity of teacher tells so and so? This is a question that must be determined by the context alone.

(2) But it leads to the second class of cases, those, in fact, in which we clearly create a fiction. We do this by objectifying some property. We say, "heat expands all bodies." It is true that heated things, or things when they are hot, expand, etc. But that is not quite what we mean. Long before the true nature of heat was known—even if it is now known to be nothing more than a "mode of motion"—the active mind of man had objectified it into a fiction and supposed it to be, or, at least, spoke of it as, a substantial reality—a thing that could come and go—be radiated, conducted—act as a cause, expand all bodies and evaporate most of them, at least, into vapor or invisible gas.

This process has, in fact, created most of the divinities of the ancient mythologies. But we are chiefly concerned with the fictions used in science.

These fictions may be of two kinds; the one made either to amuse or to deceive and mislead mankind and the other as a mere convenience for expressing or aiding towards expressing so much of a completed hought or knowledge of a subject as we already have in our mind. With the last class only shall we have a few words in conclusion.

§ 14. The full knowledge, the fully adequate conception of any object or event, implies what Aristotle grouped into his quaternoin of causes—efficient, material, formal, and final, or, excepting final causes, we have the other three. These may be stated more in conformity with modern modes of expression by saying that it includes a knowledge of (1) the thing itself; (2) its cause; (3) the law of its occurrence, (4) its consequences.

The first of these elements that we know, in the order of time, is the one I have stated as first, the thing itself. The knowledge we have of this is pretty nearly what Aristotle, and Bacon after him, included in the second and third of their categories, the matter it is made of and its specific character, or the species it belongs to. The law, or the law of its occurrence, we get only by knowing something, at least, of the efficient cause, or cause, as we usually designate it, the nature and character of that cause, so as to know how it acts, and the reason why, or the motive, if it be a moral agent.

Consequently we often know a fact by observation before we have any idea of either its cause or its law. And we want to express that fact. But it often happens that we have no words to express the fact alone, and nothing more. When we say "the sun rises," we express the fact and indicate also a cause or the theory of the fact. If we say, "I hear a sound," I am really making sound something that may not only be, but be heard. And our real meaning is, that it is as if sound were something that is made by the bell (if it be a bell that I have heard and am speaking of) that passes through the air and enters my ear.

But in this case I have made a fiction of sound. I have objectified an abstraction, and made use of it as a fiction, by the help of which I am enabled to go farther towards a full and adequate expression of what I actually know on the subject, than I could otherwise have done in the then state of my knowledge.

The history of language is instructive on this point. The first form of verbs that was indicated by a special termination, or pronunciation, as different fom the active voice, was what was called the middle voice. The active voice denoted action; the middle denoted action returning upon the agent, as "I strike myself." But in both cases alike, a noun which was used as nominative to the verb denoted the agent or cause of the action.

In the very earliest stages, we may believe that the events that men had occasion to speak of were such that they saw both the act and the agent, or the agent in the act of performing it. But soon they began to philosophize and speculate. And then they became fully aware that there were a good many events that they saw, the causes of which they did not know, or in regard to which, at least, they were in doubt. Hence the necessity for a passive form of a verb, in which the act could be affirmed without any assertion, or even so much as an implication concerning the cause or agent, as "I am struck."

This was one way of relieving men of the difficulty. But another was, the invention of fictions to act as causes and "to receive the blows." This method has led to many very serious consequences. It has really filled the thoughts of men with unreal objects, which often call for more effort to explain and account for, than the real objects that we know of themselves. How much time and thought and how many words have been wasted on the discussion of the nature of light, and theories of heat, beginning with Stahl's "phlogiston," including Black's "latent heat" and Tyndall's "mode of motion," in the department of Physical Science.

It is now considered "as the scientific idea" to use Tyndall's expression, that the atoms and molecules of matter act on each other, so that what we call the forces of nature, as heat, light, electricity, magnetism, gravity, and such like, are but fictions—convenient fictions—invented and used as a means of expressing—expressing, I say, and not explaining—the phenomena observed in the case. It is as though there were a reality which we call heat, that comes from the sun, is radiated into space, warms all things it falls upon, etc., etc.

The first use of any noun could hardly have been otherwise than as a proper name for an individual thing. But the observance of resemblances would very soon lead to the application of that noun to other similar objects and then it would become a common noun denoting the class ; and the classification which led to that use of the word, could not have been based on anything but some property that was essential to the object.

But, as it must have been observed, the quality of the causation of objects, so to call it, often depends upon qualities, properties, or conditions that are but accidental to the object that acts as cause. Thus, we can see objects, that is, they act on the eye as causes of our sensations, only on condition that they are luminous. We can feel them only on condition that they are hard. And, as hot, they affect the objects around them in one way, while as cold they produce very different effects.

If, now, we turn to the psychological sciences, we find that the same process has been going on; and not only so, it has furnished a large share of the phraseology that is now in common use.

Take the words "idea," "conception," notion," "concept," and such like, and I think we should now have no difficulty in seeing, as Reid and Cousin said of them, that they are but fictions. "There is nothing real," says Cousin, "but bodies and minds, with their thoughts and modes." "Ideas," "notions," etc., are but fictions used to denote thoughts and we could not, very well, discuss the questions that arise in our mental philosophy, nay, we could not make the statements that ordinary consideration calls for without using these fictions.

[Will the reader just cast his eye over this last sentence I have written and see how many fictions I have used? The words "thoughts," "questions," "mental philosophy," "conversation," are, I think, of this kind.]

The next class of fictions that occurs in this department of science are the terms used to denote the so-called mental faculties. We speak of "the memory," "the imagination," "the will," etc., as we do of the organs of the body, the heart, the lungs, and such like. But everybody knows that such they are not. The words are mere objectifications of abstractions—acts of reasoning, willing, etc. And, although their use in this form, with the article before them, suggests an error in regard to their nature, we could not get along very well in our intellectual philosophy without this use of them.

Now, besides the two classes of fictions named, "the forces" of nature and the "faculties" of the mind, the necessities of language led men to elevate their accidental properties and conditions into fictions, such as I have been describing; and heat, light, etc., in the department of the physical sciences and imagination, reason, memory, etc., among the mental sciences, are among the results.

§ 15. But beyond this there seems to be really no limit to the invention and use of fictions in this way. In some cases, indeed, we use the abstract term to denote the genus. Thus, we often say, "humanity," as I have already said, when we mean all mankind, the whole human race. And so, many persons say —for the sake of elegance, I suppose—"personality," when what they mean is, "person." But beyond this we are constantly creating and using fictions of another kind, or, rather, of the same kind in a different form. Thus, we say, "science has shown us," etc., "history teaches us," "speculation has led," "induction," or "demonstration, has proved," etc., etc.

That is, in accordance with a rule already laid down, the effect which we have noticed and wish to indicate is the same as if these fictions, science, history, etc., etc., were realities and act as causes, and so acting have produced the effects which are thus ascribed to them.

So, too, with the word, "law." We find it convenient often to speak of law, not merely as a rule or mode of action, but as an agent or power that can make things act in this or that way. In such cases we make law a fiction, as seen on the instant we fix our thoughts on the subject. Thus, an eminent Scotch Professor, in a work now before me, says: "Give the laws of God free play. They work out this conclusion for themselves; and when they work it out, the effect will be permanent."

And, I suppose, we are all familiar with that oft quoted passage of Hooker: "Of law there can be no less acknowledged, than that her seat is the bosom of God, her voice the harmony of the world; all things in heaven and earth do her homage, the very least as feeling her care, and the greatest as not exempt from her power; both angels and men and creatures of what condition soever, though cast in a different sort and manner, yet all, with uniform consent, addressing her as the mother of their peace and joy."

If we pass over to the Mental Sciences, the two great fictions are ideas and mental faculties.

I think it will be conceded now—or if not conceded now, it will be universally acknowledged very soon

—that ideas in the sense of something in the mind so as to be spoken of as entities, objects of transitive verbs and subjects of active verbs, are nothing but convenient fictions. It is in most all respects as if God had actually put their resemblance of things into our mind before birth or soon after, according to the doctrine of Plato and the Mediæval Realists; or as if the mind had made them according to its own laws and of "matter" sent in through the senses or obtained from the mind itself in consciousness and reflection, according to Locke, or formed them out of nothing and *a priori*, according to Cousin and his school, when, in fact, they are but fictions and there is nothing to be accounted for in this way—nothing whose origin need occupy a moment's attentions, for they had no origin, and have no exist- anywhere.

So, too, it was very natural as soon as men began to study psychology in the inductive way of observation, analysis, and generalization, that they should think of it and speak of the mind as made up of faculties, just as the body is made up of organs, heart and lungs, liver and stomach. Besides this, it was necessary to speak of the acts of the mind in groups and classes, as perception, memory, imagination, etc. These became, therefore, most convenient fictions—almost, if not quite, indispensable to the discussion of facts and questions of mental philosophy.

But we must distinctly notice the fact that they are fictions, both "faculties" and "ideas," that the mind acts as one uncompounded whole, now in this way and now in that way; and that what we actually do when we "acquire ideas," as we express it, is to become knowing, or wise; the change is in ourselves, the mode of our existing and acting, as it is with the body when we are sick and get well, or are hungry and famished, and are satisfied by eating the necessary food. Doubtless the food is a reality and we undergo the change by eating it and taking it into our bodies. But so are the objects around us and the mind within us; and we get knowledge, become knowing, or wise, by beholding them, thinking about them, and reflecting upon them.

I have already intimated that the polytheism and mythology of the Aryan people at least originated in just this way—the objectification of some observed, but not fully understood, phenomenon and quite as much for scientific as for religious purposes. Just as that has passed away in the progress of scientific discovery, so, as we progress in the discovery of the real causes and their laws or modes of action, so these fictions will be eliminated from our Science, and either relegated to the domain of acknowledged fiction, or retained as mere convenient, though well-understood, modes of expressing facts.

But the world of reality, when our thoughts are cleared from all fictions, will be found to contain, so far as men, knowledge and philosophy are concerned or can carry us, only the material objects that our eyes can see or our hands can handle, and the minds or souls that we are conscious of within us and that we can take note of in our fellow creatures by our conversation with them in the acts that they perform for our observance; and the God, who is One over all, the Creator of all things and the Being on whom all things depend for their continuance in being, the God whom we do, or should, worship and obey, and who is our best Friend here, and our Final Judge and Reward hereafter.